JANUARY, 1930

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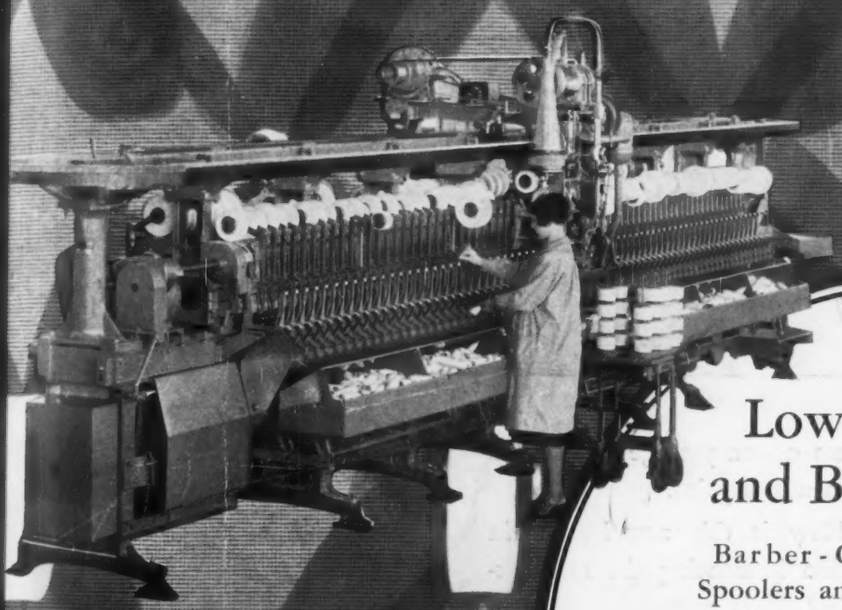
COTTON

THE TEXTILE MANUFACTURING JOURNAL



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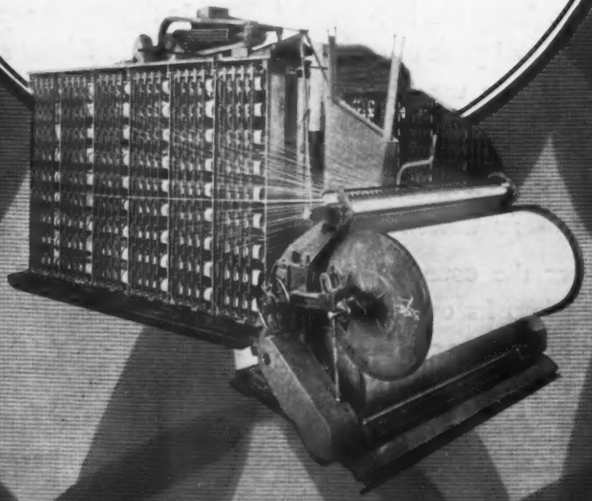

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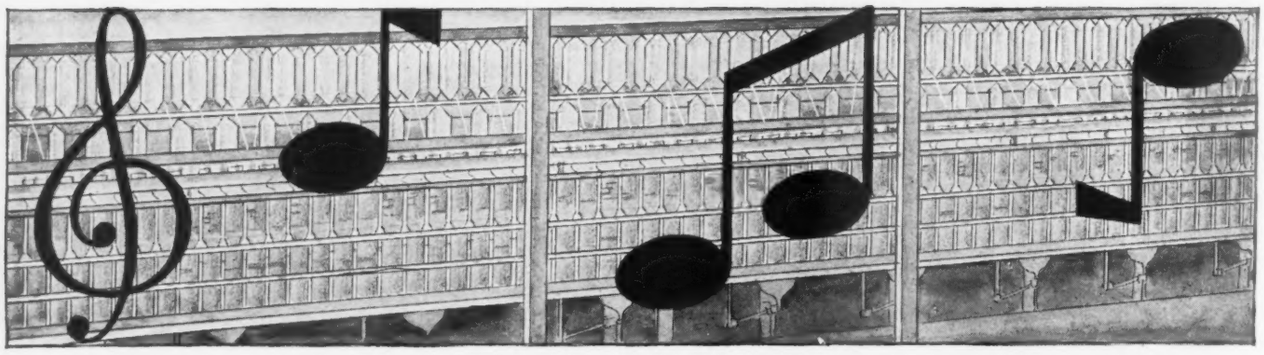
MILLIONS OF SPINNING SPINDLES

Sing Cotton's New Song



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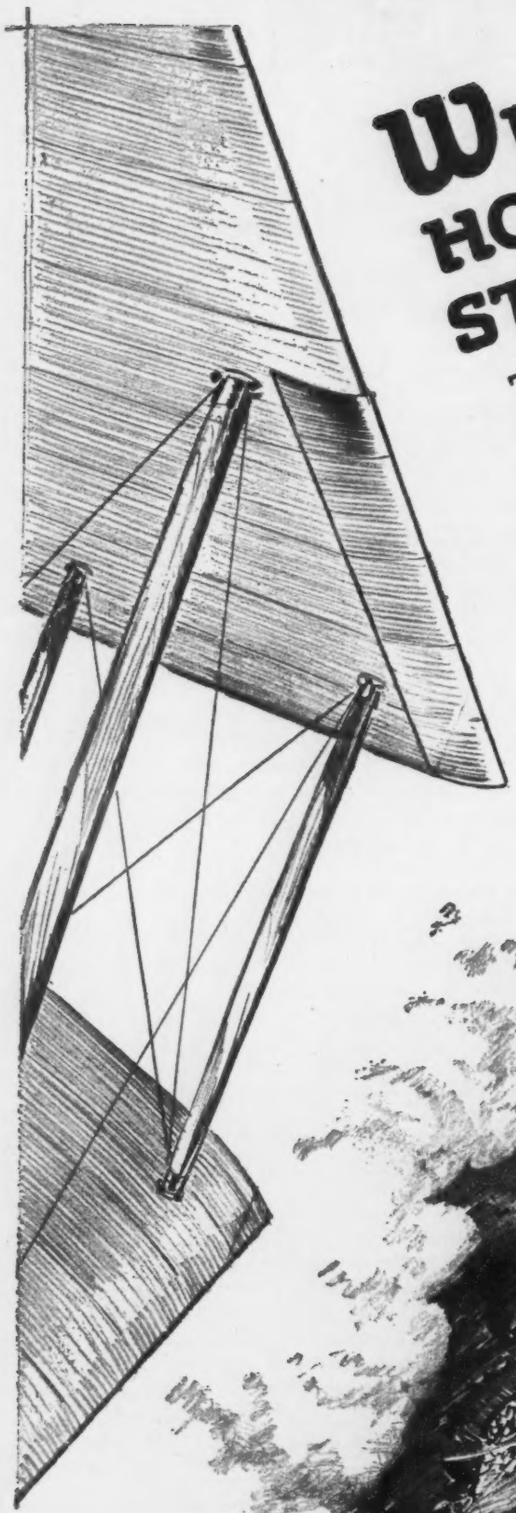

WHEN HORIZONS STAND ON END

To the manufacturer also comes the illusion that industrial horizons are up-ended as markets and methods of manufacturing shift their positions.

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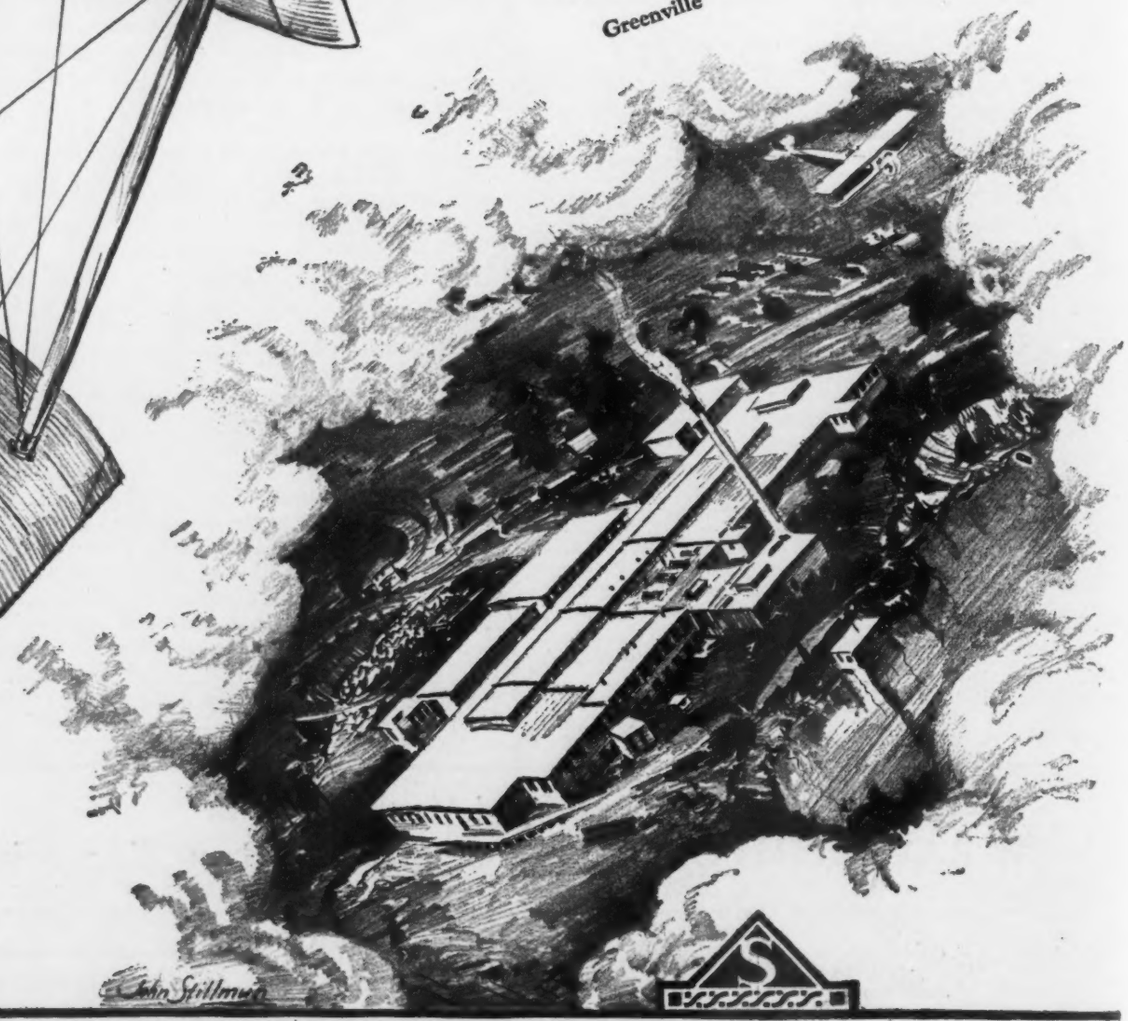


ENGINEERING CONSULTANTS ON THE SOUTH

COTTON

Vol. 94 January, 1930 No. 3

The FAITH that is within US

When Others Are Finding Our Methods Good, Can We Not Meet Our Own Problems?

By Marjorie A. Potwin, Ph. D.

THOSE who read Miss Potwin's article, "Dynamite—or Leaven?", in the November issue, will need no urging to study this second discussion from her pertaining to southern textile labor. In that article, she said, "the cotton mill employee simply needs to know the reason for the faith that is within him". Taking this as a text, she gives here a worthy sequel to her previous article.

EDITOR COTTON.

THE COTTON MILL PEOPLE of the South can afford to have faith in the industrial relationships which they are creating. Like every healthy organism, biologic or social, the cotton mill South has its defects. It knows them, and it is trying to correct them.

There is, however, a great deal of difference between curing our growing pains, and being operated on for a whole lot of major ailments that we've never had. It takes a great deal of self-control to keep from getting nervous when there are so many Cure-Alls hanging around, crazy to operate on the New Industrial South because they have killed off most of their textile patients elsewhere. At best, an operation is a physical and financial strain which, unfortunately, many people have suffered because of a false diagnosis.

The power of suggestion is a terrible weapon, and a Job's comforter can make the strongest fellow feel a little groggy by telling him over and over again how bad he looks. That is being tried right now on the cotton mill South, but down here in the land of calomel and turpentine, we know the value of home remedies. We believe in them, and usually we apply them soon enough to ward off a real disease.

All in all, industrial relationships in the South are healthy, and in their right they are strong. Our faith in them is justified. Moreover, in the unusual development of its industrial relationships the New Industrial South bids fair to make a great contribution to the industrial history of the world.

Peace, such as the world is seeking more earnestly today than ever before, has lain all about us. In taking it for granted, we have not exerted ourselves to "sell" it. Perhaps, in fact, the friendship that is the essence of our industrial relationships is too natural, too informal, too much the old-fashioned man-to-man neighborliness, to be crystallized into a marketable item. The learned men who are devoting themselves to the promotion of world peace tell us that its success depends almost entirely upon the people of the various countries getting to know each other. Well, here in the various localities of the textile South, is there anybody who can't know everybody?

The idea that capital and labor are opposed to each other is wrong in principle and wrong in spirit. Capital and labor profit together, and not at the expense of each other. A theory of conflict is the germ of war, and war is everywhere being outlawed. Nations that have known war are longing to be forever through with its sufferings and its wastes. The enlightened world has set itself against militarism. "Peace, peace, and the methods of peace" is the universal cry, and knowing the value that is being put on it, surely we will preserve our peace. Surely we shall not have to learn its value by losing it, perhaps never to regain it.

Dr. POTWIN

The effort of the world to obtain what we have should give us self-confidence and renewed faith in our industrial relationships.

Among other reasons for that faith is our heritage: not only our like-mindedness and all the ties of a common tradition and sympathy and language, and political action which enable us to understand each other, and to see a problem in the light of common experiences and knowledge, but equally important—our heritage of industrial history which gives us a position of advantage never before occupied by any other people.

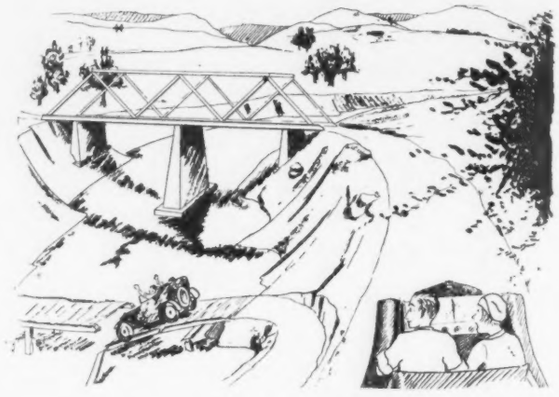
History is the story of human behavior, adventuring. From the time of

early dawn, man has been exploring in the realm of industrial relationships, and the records of his successes and his failures are set down for us to profit by. For us to use are charts written in the bloodshed of past industrial conflicts, and compasses forged in the heat of needless passions. Shoals and rocks that have wrecked unsuspecting industries claimed their sacrifices that we might steer clear. Whirlpools that have sucked their victims under are set with beacons that we might avoid them.

The course chosen by the captains of industry of Great Britain seemed bright when they acceded to the policies of organized labor. But in the name of the little children who have suffered there, may our country ever be spared the weeks and months of unemployment and government relief and bread lines that have again and again cast their shadows over England!

In the coal fields of this country, collective bargaining has been explored. Men have lined up against each other, committees have met at grips, and while they have argued pro and con in warm council chambers, the women and children of the strikers have cried for fire and food and proper clothing, and the cost of whatever was finally won for either side was the tremendous price of the human suffering of the innocent.

The patriarchs of the Bible felt no compunction in driving the galley slaves to the limit, but today public and private opinion would cry aloud at the injustice. Ever the story of civilization has been the greater and greater recognition of the value of the individual. His present social, religious, political and industrial status has been secured at great and often unnecessary costs, until the enlightened world is believing that there is nothing in it that could not have been gained by peace rather than by warfare.



THE BRIDGE OF FAITH!

"If a man driving down the road just ahead of the cotton mill people of the South undertakes to cross on a certain bridge and it falls through with him, the southern operatives are going to put their confidence in another bridge on the same road."

Certainly in the New Industrial South, in peace has been created that economic prosperity which has brought all of us more of the good things of life than any of us were heretofore accustomed to. There has never been a war that has created prosperity on the battlefield. A soldier's pockets are apt to be empty, even though his ambassadors be not lacking in comforts. The spiritual blessings of the cotton mill people of the South have come without the cost and waste of controversy. Only as rewards for steady occupation and constant wages come good homes, good churches, good schools and all the household and personal things which have fast slipped from the category of luxuries into every day necessities for the great majority of the people at the cotton mills. Have we money or energy to spend working against each other, when by working together employer and employee have each gotten along so well?

When the doubting and the skeptic shake their heads and say, "Well, sooner or later you'll have to go the way of other industries. You might as well make up your minds to it. Industry never has gotten along in peace. It can't be done."—they give us one of the best reasons for the faith that we have in our industrial relationships.

In the first place, the doubting who speak thus have been misinformed, for scattered throughout the United States are thousands and thousands of industrial plants, large and small, that have never had a labor disturbance. To think of the unionized minority as typical of American industry is an error brought about by the self-advertising of that minority.

But what if the textile South was the only place in the world that knew and believed in the methods of industrial peace? Would we not have the courage of our convictions?

Christopher Columbus was taunted and cautioned by the doubters and the unbelievers. The world had never seen a governmental experiment like that which the United States undertook in establishing itself. The methods of all medical tradition were contrary to the germ theory which Pasteur dared to father and develop until it has become the very corner-stone of the profession which scoffed at him. And so it has been with every scientific and social experiment.

If the history of industrial Great Britain and textile New England seems all against our preference in social and labor policies, the better our chance for success. If a man driving down the road just ahead of the cotton mill people of the South undertakes to cross on a certain bridge and it falls through with him, the southern operatives are going to put their confidence in another bridge on some other road.

Besides, anything unachieved offers an opportunity. Because no other man had ever crossed the Atlantic alone in an airplane, Lindbergh could be the first to do it. Our opportunity in the realm of industrial relationships is golden.

Without making much ado about it, employer and employee in the textile South have learned how to get along together, or rather they have learned how not to fall out with each other. In many of these ways they have turned to a Higher Guidance. We are a religious people here in the South, and we need not be ashamed to admit that into the making of our industry there has gone the fervent prayer and the steadfast faith of a great people united in their belief in the wisdom and the omnipotence of the God

who has created them. And has any other textile people been as richly blessed?

The way in which the rural population of the South has converted itself into an industrial order is a social invention, for any invention is simply putting together what is at hand in new ways for new uses. In the ability of the cotton mill people to invent is another reason for the faith they can have in their industrial relationships. Out of a background less rich and not so well developed in space of time as is our own, Australia and New Zealand invented arbitration. Out of a humble origin, Germany invented workmen's compensation. In these things they blazed new trails for a doubting world. Were their courage and their inventive genius or their chances for success greater than our own?

"While we have been busy building up our industry and trying to correct our vices, other people have been duplicating some of our virtues. The decentralization of industry, about which we hear so much, only means the quiet and the sunshine and the breathing space of country, such as we have always had. The 'garden cities' in England are housing projects to give workingmen homelife like ours. The 'get-acquainted' programs that employees have to resort to in some huge and impersonal factories is the groping for friendship with one's fellows like that which we enjoy at a hundred points of natural contact."

With amazing rapidity the people at the mills have learned both manual dexterity and entire new habits of occupation. And with these they have taken upon themselves new ideals and new standards. Just as the hoe has been discarded for the reed hook, and cash has replaced barter, and weekly wages have supplanted yearly reckonings, so have sanitation and education and recreation been aspired to where once they were ignored. In two or three decades we have had all these changes, and more, as witness of the adaptability of the cotton mill people. They have stamped the impress of their capacity and their personality indelibly on the industry which they have created.

For instance, had they not asked that houses be provided for them near their jobs, the mill village system would never have grown up. No power in the world can perpetuate it, if they care to move from it into their own houses or into those of other landlords, for if there is a mill anywhere that refuses to hire help that "lives on the outside," we have not heard of it. As a matter of fact, most mills do not require even that all the workers in a family in the village work in the mill, if some of the superior ability can market itself to better advantage in a nearby town.

In dozens of ways the operatives have shaped the labor policies of the southern mills. They built up the old method of quartering to accommodate themselves. They have made the necessity for a law for a 48-hour week look ridiculous to those who work over the pages of the time books. They have been responsible for the system of "spares", and as they are coming to see that it works to their disadvantage, they are correcting it by more regular attendance. They are looking at safety in a new light, and are eliminating occupational accidents by a new understanding of them and their consequences. But it is too much to expect that any people could so completely change in so short a time and not leave some things yet to be corrected and perfected. But why cannot a people which has already done so much, work out the rest of the defects by continuing quietly to apply its inventive genius to the solution of each problem as it arises? Given our inventive genius and the will to do, we need not prefer any other method to our own. Particularly as none other has succeeded so well, and nowhere is there absolute perfection.

While we have been busy building up our industry and trying to correct our vices, other people have been duplicating some of our virtues. The decentralization of industry, about which we hear so much, as the remedy for the social and commercial ills of industry that is suffocating in highly concentrated cities, only means the quiet and the sunshine and the breathing space of country, such as we have always had. The "garden cities" in England are housing projects to give workingmen home life like ours. The "get-acquainted" programs that employees have to resort to in some huge and impersonal factories is the groping for friendship with one's fellows like that which we enjoy at a hundred points of natural contact.

Because we are individualists in the South, we like our small plant system, and because the plants are small the recognition of the individual is large. That, together with all our ties of race and stock, and our ability to find the peaceful way, makes our industrial relationships healthy. By the search of the world for peace, as well as by our own enjoyment of it, we have put *faith* in the ways that accomplish it. To preserve them and to perfect them is but a challenge to the spirit of conquest and invention in which the cotton mill people have applied themselves to the creation of their industry. They have worked many things out for themselves in the short space of fifty years, and in the long history of the world much else has been undertaken for them to profit by.

In faith and self-confidence they can push on, good mariners, charting a new course in industrial history, perfecting it as they go, and finally passing it on as the contribution of the New Industrial South to the peace for which the world has long been seeking.

What Do *the* Textile Mills Need *Most* in 1930?

Viewpoints of Leading Mill Executives as to What Has Been Done and What Should Be Done

THE CONFERENCES held at the direction of President Herbert Hoover, following the stock market debacle, brought together business and industrial leaders from all parts of the country and from the major industries and trades. The fundamental purpose of these conferences was to "sound out" the leadership of the nation's industries and businesses as to the prospects held by the new year for pushing forward in all lines of activity.

CLOSER CO-OPERATION, regulation of production to demand, better cost keeping, stricter economy, closer employer-employee relations, better merchandising, more intelligent management, systematic employing—these are some of the things recommended here by thinking mill men, as being worthy of consideration by the mills, individually and collectively. More detailed discussions of manufacturing efficiency and production methods will also be found in this compilation of ideas from financial and operating executives in the southern industry.—The Editor.

This article represents an effort on the part of COTTON in very much the same direction with regard to the textile industry. During the middle of December, an inquiry was sent to a number of outstanding financial executives and operating executives in the southern textile mills, requesting their opinions as to what developments had taken place and what progressive steps had been made during the past year, by the industry as a whole and by individual mills which had benefited the industry and its mills, and also their judgment and opinion as to those things which are most needed by the industry and by the mills for progressive and successful operation in the future.

The responses to this request present an accurate cross section of the opinions of some of the outstanding men in the industry, and this article will set forth some of the replies made by a large number of those responding. In this compilation, no effort has been made to classify these statements as to subjects, and it is true that there may be duplication of thought in many cases. On the whole, however, it is felt that the forward thinking reader will be interested to study the various opinions here expressed; and that these ideas will present much food for thought for the industry as a whole.

General Phases of the Industry

CONSIDERING first those expressions which relate directly to the general phases of the industry, with particular reference to merchandising distribution, as well as general management, the key note of the opinions is perhaps best expressed by W. D. ANDERSON, president Bibb Manufacturing Company, Macon, Ga., who says:

"The fact that all of us engaged in the textile industry here in the South have come to realize that the influences which affect us as a group affect us in an identical way as individual manufacturers — that what is not good for the industry as a whole is not good for any of us individually—or in other words, that we have come more clearly to realize that we have a community of interests, is probably the greatest and best thing that has happened to us here in the South during the past 12 months."

Continuing, Mr. Anderson says, "I realize that we have made splendid progress in more efficiently operating our mills and in a consequent reduction in the unit cost of our goods, I believe we have generally improved our product, and I hope that we have improved our merchandising and our distribution, but all of these things are material matters which appeal to our selfish interests.

"On the other hand, the development of this idea of a community of interest will be far reaching in its effects and its propulsive force will carry us to higher and better accomplishments in the conduct of our business.

"Assuming that we shall continue to go forward in all the matters I have mentioned, I believe that we should give our special attention for the new year to an earnest endeavor to bring about a closer cooperation between the mill management and the employee in the mill, and a finer conception of the duties and responsibilities which each group owes to the other. We should grow in our appreciation of the fact that all of us are of a common race and blood, that our real interests are identical, that we are mutually dependent on each other, and that the happiness, contentment, welfare, and prosperity of the one depends on the other enjoying these same blessings. As employers and mill managers, we should take the lead in this matter and carefully examine into the fact to see whether or not we are doing our full duty to those associated with us in our business, in providing comfortable homes, proper home surroundings, satisfactory working conditions, and to be sure that we are contributing our full part in maintaining a healthful social life for our employees.

"I am sure that those who are helping us run our

mills will meet us more than half way in such a move and that the result will be satisfying in every way."

ARTHUR M. DIXON, vice-president and assistant treasurer of the American Yarn and Processing Company, Mount Holly, N. C., and treasurer of the Dixon Mills, Inc., and Trenton Mills, Incorporated at Gastonia, N. C., who is president of the American Cotton Manufacturers' Association, points out that the past few years have witnessed a large increase in production *per spindle* and a big improvement in the quality of the finished product. To his mind, the reason for this has largely been brought about by two things: One has been the replacement of old machinery with new, and the other has been the result of group meetings that have been held by superintendents and overseers.

A. M. Dixon.

"The biggest thing that the cotton mills have done during the past few years," says Mr. Dixon, "has been the formation of the Cotton-Textile Institute. While the Institute has by no means done all that it expected to do, and much remains to be done, it has pointed the way to cooperative effort, it has urged better cost systems, it has created and is creating new uses for cotton, and assisting in promoting the increased use of cotton goods." Mr. Dixon expresses the opinion that nothing that the mills can do within the next two years will bring greater results than in giving the Cotton-Textile Institute wholehearted and active support.

From Anderson, S. C., in the heart of the print cloth region, comes the following opinion from MARSHALL P. ORR, president and treasurer of the Orr Cotton Mills. In his opinion, "The greatest progress that has been made is the realization that the textile industry must be dealt with as a whole, causing greater co-operation in efforts to cure the ills of selfish overproduction. The next greatest progress is the replacement of obsolete machinery and *methods*." Mr. Orr believes that, "the greatest need is for the public and the legislators in the South to analyze the destruction of the textile industry of Massachusetts."

Over-production is the most serious problem confronting the textile industry today, according to KENNETH S. TANNER, head of the Tanner group of mills, Spindale, N. C. As the industry is now organized, he sees no answer to this, "except individual action of the mills in refusing absolutely to accumulate any stock and refusing to accept any order which does not show a profit, figuring cost on part-time running, based on probable consumption."

What has been done by individual mills is a matter of small interest, according to WILL D. BRIGGS, president Caraleigh Mills Company, Raleigh, N. C. He says that, "what is *needed* by the industry as a whole is intelligent merchandising which must be based on intelligent control of production. Until this is brought about there can be no prosperity regardless of new equipment, or any other method which may be adopted."

"In order to change the industry from its condition of stagnation, it is absolutely essential that the mills institute continual curtailment that will fit the production to the demand for products," is the opinion of JOHN G. CHAPMAN, general manager, Samoset Cotton Mills, Talladega, Ala. He continues: "Time after time in the past we have foolishly over-produced and created large stocks, resulting in the ruination of our market, and then have half-heartedly curtailed for awhile, feverishly resuming operations at high speed before our excess stocks were even absorbed. The inevitable result of such a procedure has been to continually maintain these excessive stocks, which in orderly manufacture should never exist except in a very slight degree. In my opinion, the situation will never be materially better until each group meets together, determines accurately the per cent of over-production, and then each mill actually closes down this per cent of machinery, not for two or three months but for two or three years. Such a curtailment will also be better for the operative, for in this way each mill could retain at full pay the great bulk of its employees, and let the element of 'floaters' drift out into some other vocation." Mr. Chapman points out that, "The unfortunate thing about all of the improvement in the textile industry is that the mills have received no financial benefit from any of them, or at most a very small benefit, for the reason that our production so far exceeds the demand that any saving of any nature is immediately passed on to the consumer. The last five years has been a period of continual drive to give better quality, and to manufacture more cheaply, and yet our industry is in a worse condition now than then, because our production, in my opinion, at the present time is relatively larger, in relation to the demand, than it was then."

OSCAR D. GRIMES, vice-president and general manager, Athens Manufacturing Company, Athens, Ga., believes that the work of the Institute has been beneficial to the textile industry as a whole, and will continue to be beneficial if properly directed and supported. He believes that a continuation of the group meetings sponsored by the Institute will help the managers in the textile industry, just as the sectional and other meetings have helped the technical man in the mill. "More and more unselfish cooperation is needed among the mills of the same group." Mr. Grimes also declares that replacement of obsolete machinery has helped many individual mills, and continues,

O. D. Grimes.

"The welfare of the employees should not be forgotten, even during a period of curtailment and a plentiful labor supply. A fair day's work should be expected, and a fair wage paid, in addition to giving the best working and living conditions which can possibly be provided."

Alabama is next heard from, in a brief statement from SCOTT ROBERTS, president of the Adelaide Mills, Anniston, Ala., who says, "I would like to see the real leaders in the industry and the press take a more active part in the campaign to eliminate the work of women at night in the cotton mills. I do not look for any real improvement in the textile business until this practice is stopped."

These *Have* Helped---

Better opening, one process picking;
Long draft spinning; better methods of warp preparation;
Giving operatives fuller jobs and more pay;
Better humidity control, and regulation of numbers.

These are some of the things which, these mill men report, have been contributions to better conditions during the past year.

C. H. COLE, manager, Micolas Cotton Mills, Opp, Ala., expresses the opinion that the remedy lies within 90 day's reach, "and if we had the manhood and the guts to reach out and get it, we could place the textile industry on a profitable basis and satisfy the demands of labor. 90 days' curtailment would boost the price of cotton goods to where there would be a better living for the employees and a profit for the owners. Believe it or not, but we haven't got the guts to try it."

A well-expressed opinion comes from L. W. CLARK, general manager, Spray and Draper plants of the Carolina Cotton and Woolen Mills Company, Spray, N. C., who says, "I am inclined to think that the organization of the Cotton-Textile Institute is probably the biggest thing that has been done by the industry, even though it has not accomplished anything like as much as it might have if a greater spirit of co-operation had existed. There is entirely too much individualism on the part of many manufacturers, and it is apparently going to take years of education to get a large majority to work together for the best interest of the industry as a whole. It sometimes looks as if the whole situation would have to be fought out on the basis of the survival of the fittest."

L. W. Clark.

D. S. COOK, agent, Pepperell Manufacturing Company, Opelika, Ala., offers the following thoughts for consideration. He says that in his opinion, the success and progress of the textile industry in the future, applying to the mills individually and collectively, will depend upon the following things:

"1. On a balancing of production and consumption of the products of the industry, which will create and maintain the necessary demand to insure fair and consistent returns to the producers.

"2. A cooperative method of production regulation, which will affect all units in the industry equally, or on the same basis, that is, that no individual or small group be allowed to carry the burden and suffer severely because of the lack of forethought on the part of others.

"3. Determined effort on the part of all mills, and those in charge of merchandising, to keep selling prices on levels that will insure reasonable returns.

"4. Reasonably full-time employment is essential to purchasing power, on which the success of the industry depends. Full time employment can be provided for all in the industry by a careful study of its conditions, and then by a cooperative plan for applying the remedy which proves obvious.

"5. A practice of rigid economy by the individual mills, staying within the bounds of necessity, and providing well for those things on which profits are dependent."

Mechanical Phases of the Mill

TURNING NOW to the inside of the mill, we shall present a few of the ideas expressed by leading manufacturing executives as to the things which have been done that have been of benefit, and those things which are needed, both by the industry as a whole and by individual mills. First, and of especial interest, are the comments of J. E. HARDIN, secretary and general manager, Proximity Manufacturing Company, Greensboro, N. C. Referring to the request to discuss what has been done in the way of improved equipment, etc., Mr. Hardin says:

"I am sorry that I cannot name at the moment any outstanding improvement in machinery or equipment which has had any appreciable or outstanding bearing upon improving the textile industry as a whole. I suppose the continuous process of picking would hold about first place in the way of improvement in processes developed within the last year or so for the average cotton mill. Items tending to refine and perfect the operation of certain machines have, of course, been brought out, but their importance to the industry is, I believe, generally regarded as negligible.

"We seem not to have developed anything in the last few years as important as the automatic loom, or the high speed spindle, or the revolving top flat card, or automatic warp tying machine, but owing to the keen competition and poor condition of business generally in the textile industry we have been having for the last few years, it is high time somebody is getting busy to bring out some major improvement in line with those mentioned."

Mr. Hardin then responds to the inquiry as to what is needed, with the following interesting remarks:

"In my opinion, the greatest need in the textile industry at this time, which lies within the range of practical possibility, is a more intelligent, broader minded policy of the management of the individual plants. We are all prone to get into ruts as we grow older, and stumble over flagrant inefficiencies and avoidable waste day after day, whereas we should stop when we encounter a certain thing in our mills which we know is not as it should be, and right then and there make up our minds that we are going to apply our very best abilities to the solution of these individual problems. This is no job for the outsider or the inexperienced or the weakling, but it requires the very best effort of the men of the very best ability in the organization.

"It is remarkable what can be accomplished in even a year's time if we will just stop and look about us in our own plants and make up our minds that we are going to eliminate these inefficiencies and flagrant waste and lack of proper co-ordination and application of labor to the specific job in hand. There are probably no large outstanding items which will rise

up and knock us down, but we must hunt them up, and when we definitely locate them, not let up on them until they are solved and solved correctly. All these small details, in the course of a year, amount to an enormous aggregate in the way of improving our efficiencies in eliminating waste and reducing cost.

"Too Many Spare Hands."

"The average plant is spending entirely too much for labor which is not efficiently employed, and with proper study and planning, this can be largely corrected and greatly improved. In correcting these inefficiencies, we must also work it out so that the individual employed, when more efficiently applied to his job, will earn more wages. Unless these two things can be worked out together, namely: to make for more efficiency for the mill and higher wages for the employee, the whole thing is a miserable failure, but in most cases, both of these results can be accomplished, if worked out properly, and the lack of accomplishing both of these results has largely, in my opinion, been the cause of the criticism to which the textile industry has been more or less subjected within the last year or so.

"It is astonishing when we go through our plants how many small jobs there are which do not demand anything like the entire time of one person. Frequently, several of these jobs can be combined and be handled by one good man, which would justify giving him a better rate of pay.

"Furthermore, frequently by furnishing the expert machine operator with a little help, the expert machine operator is able to produce considerably more stock from a set of machines, with the aid of an inexperienced helper, than he could otherwise do, and the result is that the mill can pay a lower rate per piece and pay the inexperiencd person a fair wage while he is learning, and at the same time enable the experienced and skilled operator to earn more money.

"This takes careful study and careful planning, but in many cases it could be successfully worked to the advantage of both the mill and the skilled employee.

"Obviously, it is better for the superintendent or those in authority at the individual plants to work ing out an improvement to benefit both the mill and the employee, the net result is a misunderstanding and often friction between the help and the mill.

W. A. Black.

"Frequently, a small and inexpensive apparatus can be installed, which will eliminate considerable hand work in handling stock and materials around the mill, all tending to increase the earnings of the individual employee and reduce the cost att he same time and make for fewer employees to be housed and supervised.

"I believe that our greatest improvement lies in giving these small details the attention they deserve by the proper people, and the aggregate will represent the economies that it is possible to effect and the increase in earnings of the better class of skilled employees."

These *Will* Help Now---

Closer co-operation between mills;
More effective distribution methods;
Regulation of production to demand;
Reducing labor turn-over;
More intelligent cost keeping;
More sensible management;

These are among the things suggested for more careful consideration during the coming year, by the men responding to the inquiry.

L. L. BROWN, superintendent of the International Shoe Company's mill at Malvern, Arkansas, and president of the Southern Textile Association, next discusses the subject, taking up first mechanical details, and saying, "The following are the most important things that the mills have done in the last two years to increase manufacturing efficiency. First, opening room equipment and one-process picking are effecting a lower cost both in labor and in cotton, also a more uniform lap with its subsequent advantages. Second, long draft spinning, which gives the lower cost in both card room and spinning room. Third, the spooling and warping, in my mind are the greatest improvements of any, with the subsequent advantages, such as lower cost and increased weavability of the warp yarn.

L. L. Brown.

"The biggest thing that I see that the mills are faced with from now on," says Mr. Brown, "is not so much the lowering of cost and the efficiency methods, but which are of course good in themselves, but a more thorough study of our labor situation. Of course you know and everybody else knows that our greatest trouble is over-production with its accompanying evils."

Then Mr. Brown brings out an interesting point in expressing the opinion that it would be a great help to all mills to operate the plants with as few spare hands as possible, thereby giving steady employment to the regular employees. This one thing, to his mind, will come nearer keeping a satisfied set of employees than any other one thing. For example, he says, "For the last six months, our employees have averaged working 50.9 hours per week out of a possible 55, which expressed in other terms would be 92½ per cent. We arrive at this figure each week, by taking the total number of hands on the payroll and dividing it into the total number of hours worked, which you will see also includes the labor turnover. I do not have the exact figures, but should we eliminate the labor turn-over from these figures, I dare say that our employees will average at least 53 out of the possible 55 hours."

Reverting to the expression of L. W. CLARK of Spray,, he has the following to say with regard to the manufacturing angle of the subject: "The attention

given to the installation of new and more modern labor-saving machinery and to the multiple loom or extended labor systems of operation, where they have been intelligently introduced, have been steps in the right direction. More mills will have to give attention to these things and with them will naturally come a higher wage per operative with a lower per pound or unit cost for the mill. Some progress has been made in regard to properly determined costs, though most mills I believe are woefully behind the times in regard to this one matter and when the larger percentage of them install intelligent cost systems, it will be better for the individual mills and for the industry as a whole."

Quoting again from D. S. COOK of Opelika, Ala., he says, "According to my observation and experience, those things which have been done in the textile industry along the lines of most efficient manufacturing, during the past year or so, which have been most helpful and which contributed most to the individual mill and the industry as a whole, are as follows:

"1. Better methods of warp preparation, which improves quality and reduces cost.

"2. Various systems of operating machinery which reduces cost and permits the operatives to increase their income.

"3. New systems of drafting yarn, which reduce cost and have other advantages.

"4. Improved methods of cotton preparation which not only result in better work, but reduce cost by doing the combined work of two or more machines equally as well, if not better.

"5. The steady developments in the field of temperature and humidity conditions inside the mill, which not only produce better work, but make better and healthier working conditions."

ALBERT T. MATTHEWS, vice-president and general manager, Martha Mills, Silvertown, Ga., in speaking of what this mill has done, says, "We have tried to work out ways and means for producing our fabric at the least possible cost per pound and with the least possible effort on the part of our operatives. If there is any slogan which I would adopt for this thought of yours, it would be 'let the machinery and the kilowatt do the work which has previously been allotted to manpower.' This can be accomplished not only by time study, but processing study, arrangement of machinery and a study of the operation to place every operative so that all the operatives can accomplish the greatest amount of work with the least expenditure of energy."

Methods by which the yarn numbers can be held almost on the exact dot from day to day and over long periods of time, irrespective of outside weather variations, constitute one of two outstanding points which occur to D. D. TOWERS, superintendent, Anchor Duck Mills, Rome, Ga., as being worthy of mention. "This," says Mr. Towers, "is made possible by proper and automatic humidifying control and proper arrangement for weighing picker laps to take care of the varying conditions of humidity hour by hour, in connection with correct adjustments of preparatory machinery. Under the right conditions, and speaking from experience, Mr. Towers continues, "it is possible to go for a long period of time without any change of draft gears for the holding of numbers, while at the same time the daily averages will not vary more than one fourth of a number up or down from standard."

The second thought expressed by Mr. Towers as being most important is that, "each mill should install an employment manager or department, whose principal duty is to handle the employing and separation of all help, relieving the overseers of this most important function. As is well known, the turnover of cotton mill help is excessive and represents a large loss to any mill each year. With the proper man in charge of employment, this expense can be reduced sufficiently to pay the cost of the department many times over and the result will be well worth while."

Geo. W. Murphy.

C. H. Lockman.

D. D. Towers.

GEORGE W. MURPHY, superintendent, Columbus Manufacturing Company, Columbus, Ga., wires in the following succinct summary: "One-process picking, long draft spinning, and classification of skilled and unskilled labor, have effected lower mill cost. The past year's curtailment has helped, yet a proper adjustment of production to consumption, and encouragement to farmers to grow better staple cotton are pressing needs."

"In my opinion, the last few years have seen considerable increase in efficiency in cotton mills, particularly in improved cleaning and blending of cotton, single-process picking, automatic spooling and high speed warpers," says M. M. TROTTER, vice-president, Manchester Cotton Mills, Manchester, Ga. "I also think there has been a very general improvement made in slashing processes and humidity control. All these things contribute to higher production and better quality and hence benefit all concerned.

"I have no schedule of particular needs to be taken care of in the future, but feel that there is plenty of room for improvement in all of our machinery and operating processes, and that competition is forcing all mills to take advantage of improvements as fast as they are worked out."

C. H. LOCKMAN, superintendent, Caroleen mills, Henrietta Mills, Caroleen, N. C., points out that, "The mills have become more particular about selecting their cotton. Opening and picking machinery has shown a considerable improvement over old style machinery. Humidity has played a very important part. Carding is receiving more attention. Improved warping and spooling machinery has helped wonderfully. Tape and chain drives have come in for their share. Slashing is receiving more attention than ever. Cost-reducing methods have been a wonderful help indi-

(*Continued on page* 366.)

Too Many "Mills" on Worth Street

By Bruce Moran, Vice-President
Eastman, Scott & Co., Atlanta.

Put fresh style into your lines;
Put new blood into your selling;
Let the trade know the source of your goods.

These are suggestions of Mr. Moran to the textile manufacturers. His ideas are based upon an extended and intimate contact with textile merchandising, and are presented here as his own opinion—for your consideration and thought. He may or may not be right, according to your conditions as you see them; but perhaps he will give you a new slant on the picture.

I HAVE BEEN WATCHING the textile field for more than twelve years now, from an excellent point of vantage—and I can't agree with this idea that we all should toss our selling agents and commission houses overboard—and thus become wealthy overnight. Too many of us would be minus our mills . . . *overnight.*

There are, of course, plenty of exceptions. Just the other day I saw the figures on a concern, not too distantly related to the textile industry, which had dropped its selling agent, and gained forty per cent in volume within one year thereafter. And the gain ran into a good many millions of dollars.

It would be very easy to generalize with that example as a text, and draw the sweeping conclusion that selling agents are hampering our progress. But how wrong we would be in so many cases. For the selling agent and the commission house have too definite a place in the economic scheme to be generalized about in any such superficial way.

There is, of course, a certain type of selling house of dog-in-the-manger tendencies, whose formula for holding accounts is beautiful in its simplicity—though often fatal to the victim. This formula consists of burying the mill identity so completely that the goods apparently spring full-fledged from Worth Street, like Minerva from the brow of Jupiter.

Thus, when the perplexed textile man journeys to New York with threats of moving the account unless prices are held up better, with demands for protection against unjust complaints which create undue credit-memos, and the myriad things a live selling organization should, could and would prevent, he is greeted by this pretty little speech:

"What, and start all over again? How would you keep that new weave-shed busy while a new house, or your own organization, was getting your volume back to where we have it? The trade never heard of you. The public doesn't know you exist. You'd have to build from the ground up and it would be suicidal; you'd have to shut down fifty thousand spindles for the next six months or more, and be lucky at that."

To which there is no answer. The mill without trade identity is helpless, and soon finds it out. "Trade identity" does not necessarily mean trade-marks, though they do the job quicker. It does not necessarily mean heavy advertising in magazines and newspapers. But it does mean some form of promotion—if it is only the salesman's talk about the goods—which makes the customer realize that the merchandise came from a reputable house, proud of its product and of its name.

Let us return to that concern whose volume climbed forty per cent in a year of selling their own output.

Bruce Moran.

Those added millions were not secured by magic. Long and careful planning was back of the move. The goods had for years carried a mill brand which had been intelligently and consistently promoted to trade and public. Wide acceptance had been built up—and without that foundation none of the rest could have been accomplished.

But neither was acceptance, however wide, a guarantee of success. The concern went back to bed rock and "sweetened up the line"—as retailers put it. In other words, fresh, modern style was injected into the goods. The old reliables were given snappy young team-mates. And the dead ones were trimmed out until a well-balanced, thoroughly marketable line was arrived at.

Then selling machinery was created. Men were chosen with care, and drilled with patience in selling methods thought out far in advance. Many of these men had to unlearn a lot of quaint ideas—the textile industry being a fertile field for the growth of quaint and obstructive taboos, habits and notions, as we all know—and recognize that conditions had changed

since first they fared forth with their 1895 swatch-books.

The trade had to be told, and was told in sundry impressive ways, that here was a new and very active group grown out of an old and thoroughly experienced organization—ready to do modern business in a modern way. And the trade responded promptly, because real merchandising strikes a responsive chord in the breast of every real merchant.

The result you have been told. But it is now evident that dropping the selling agent was not the mystic formula it seemed. A lot of clean-cut thinking, a lot of intelligent planning, and the right sort of promotion in the right place at the right time—these were the items that did the job.

And if you will call the roll of America's foremost textile successes, you will find much the same story. Some of them did it in conjunction with their selling agents, because they were tied up with forward-looking houses. Others had to clear their decks for action first. But essentially the reason they climbed up out of the great "Battle of the 25 Points" is that they carried their names clear through to the ultimate point of consumption, forcing the trade and public to recognize their right to get good prices for good merchandise.

Now I can hear, very distinctly, mutterings from sundry mill men to the effect that "this is all very pretty, but *we* make staple goods." And a good many of them are perfectly right—except in the use of the word "staple." What most of them really are making is raw material for some other branch of the industry. And these mills are a story all to themselves. They are in the weakest position of the entire industry, because they are several more "removes" from the consumer than the ir brothers with trade-marks. And the further you get away from consumer-contacts, the deeper you are embroiled in the great "Battle of the 25 Points."

But these ideas apply perfectly to producers of even the most staple finished goods. Just the other day I was admiring some curtains in a home done by one of the South's foremost decorators, and discovered on close inspection that they were only our old friend osnaburg, dressed up a little. Furthermore, I have seen denims used the same way—and, of course, plenty of grey sheeting block-printed, or trimmed with an edging of print-goods. I don't pretend that such uses will keep our mills running nights, but it does show what a little styling will do for the most commonplace staples in the line.

And styling, properly applied, will go a long way toward keeping our mills busy, our warehouses empty, our prices up. Somehow, sometime, style can help sell every construction that comes off a loom in America—and there is no good reason why it should not help sell yarns as well. For styling is simply a matter of dressing your goods so they appeal to the buyer.

This may mean nothing more complicated than a cellophane wrapper, such as we are seeing more and more on the finer domestic lines. Or it might run to the high development of pattern and design, woven or printed—with the goods boxed decoratively. It all depends upon the merchandise, its value, its utility, its present need for a fresh appeal to trade and public.

In my opinion, and I am far from lonesome in this point of view, most of the things that are wrong with the textile industry—and there are a number of such things—can be overcome by individual mills if they will do these things:

1. Put fresh style into their lines.
2. Put new blood into their selling.
3. Let the trade and public know the source of the goods.

It sounds simple. Actually it is a big job. But it is the secret of keeping your volume on an even keel—and dividends flowing steadily to your stockholders.

This Matter of Luck

From the Sayings of "Old-Timer."

Guess you remember the article OLD TIMER wrote about "luck." I heard a fellow "gassing" the other day about how a certain man who had just been promoted, always seemed to play in "luck." It so happened that I knew the man who received the promotion and have been in close touch with his work for several years, so I replied to the gentlemen about this way:

"Yes, when I was a young man like you, I saw how 'luck' seemed to just run over some people and I began to make a study of these people. After several years of careful observation I decided that to be 'lucky' enough to get promotion, all an overseer or superintendent had to do was to:—

"Be on his job every minute with that same 'pep' that he had when the job was first given to him.

"Instead of loafing with the crowd, stay at home nights and apply himself earnestly to a study of text books and textile magazines, not only to keep himself up-to-date but to be prepared for the bigger job when it came.

"'Beat the other fellow' in production; make less seconds; have better help by training them better; command more loyalty from employees by being loyal himself and absolutely square in all his dealings with them.

"When told and shown by his employer how certain things must be done—to keep on doing those things and not have to be told and shown again in a few months.

"Instead of trying to 'pass the buck' when things go wrong, shoulder the responsibility he is responsible for and go at his work with the determination to prevent a recurrence of the fault."

Oh! yes, it is easy pardner—you just do the things the lucky man does and you will be *lucky* too.

So many of us confuse 'economy" with *"not* spending money." It doesn't mean that at all. *Not* spending money oftentimes means extravagance, as the illustrations I have pointed out clearly show. Sometimes *spending* money, in the *right* way, will be "management without loss or waste," if good judgment is exercised in making that "expenditure."

"Watchful Waiting" or DYNAMIC ACTION

A Sound Discussion of What the Textile Industry Needs— More Work, Less Resolutions

By Dunhill Marsden

THE MAN who wrote this article is in a position to know whereof he speaks—and proceeds to speak. He has given a comprehensive survey of many of the industry's ills. Yet, while he prescribes some helpful medicine, after a thorough diagnosis—it's up to the patient to take it. You, as a representative mill man, may be considered the patient. Accept our assurance that this physician is not a "quack"—and then decide what to do with his prescription.—THE EDITOR.

A FEW DAYS AGO the writer read an article in which it was stated that we are "just beginning to get into a competitive period." The days through which we are passing are not a spasm of competition from which there will come a relaxation bringing back normality and a return to the old satisfactory methods of doing business.

Those who are wise are realizing this and are preparing for the more terrific days that are to come. Watchful waiting is permissible for a certain length of time but after that period has passed, the accumulated experiences demand that some action shall be taken.

The old cost reduction that was the bugbear of the manufacturers and the anathema hurled back by the sellers and distributors of manufactured products has about reached its limit. The old inferiority complex produced by sellers and consumers of manufactured products has been supplanted by a superiority complex of quality made goods.

The heavy burden of manufacturing has now been transferred from factory to distributor and this branch of economic life is now in the travail of giving birth to new methods in keeping with new conditions.

The purpose of this article, however, is not one of chastisement of any factor of economic life, but to condemn the policy of watchful waiting and impress upon the executives of the textile industry that action is necessary. Words and discussions and resolutions are good, but action that will prepare the industry to meet the new competition is mandatory.

There has grown up in our economic philosophy a belief that cycles are recurrent and necessary, and that regardless of the efforts put forth these cycles will come. This statement is true, but with this belief there has also come into being the feeling that man is not responsible for them and man can do nothing to prevent them. This is the rankest fatalism. It is the policy of watchful waiting raised to the *n*th power.

The textile industry, by and large, has been waiting for the reaction of the war inflation to run its course and, by some unseen and mystic power, to again raise economic conditions to a prosperous level. "We have had these depressions before and have pulled out so we can do it again," is the expression heard on every side, but what is the industry doing more than talking and discussing and "pessimizing" and passing resolutions? Action is the factor necessary. Nearly every man knows what should be done and yet the policy of waiting prevails.

Competition of the intensest type is here to stay and as economic life advances it will continue with more and greater intensity. While the United States is a leader in the progressive ideals of industry this does not make it safe from the ravages and competitions of other nations of less progressive thought.

The world is moving rapidly everywhere. Nearly every nation making cotton textiles is fast passing into a condition of producing more than it can consume. England has for a long time been in this condition. Germany and Japan are hunting for outlets. Textile industries are springing up in nearly every country of any economic stability. Every time a country seeks export markets our competition grows in the foreign field. Every time a country introduces into its industrial system the manufacture of textiles that country becomes a less potential possibility, and the same may be said of the countries that have this industry now but not to the absorption point, as they will undoubtedly increase.

Competition is compelled to increase with world spindleage constantly increasing and efficiency methods of operations gradually and steadily increasing poundage per spindle. It is true that world population is moving on and as people evolve into higher realms they increase in their desires and want more. This works both ways. While there is a new line of consumers coming in for new cotton demands, there is also an old line of consumers moving out of the cotton demand, desiring new things.

If the textile industry of the United States could meet the foreign competition on a common, industrial, economic basis, there might be a brighter picture to portray, but the United States, on account of its protective system, has established within its realm an artificial, economic system rather than a natural one. Wages, living conditions, cost of production and many other factors place a handicap upon domestic goods in foreign markets and the higher the tariff, the greater the handicap and the more intense the competition.

There are other and brighter phases of the tariff but this statement is so true in reference to export trade that no further statement is necessary to validate it.

This domestic protection for textiles and for other commodities not only furnishes stringent competition in foreign fields where goods are entered free, in some cases it provokes retaliatory measures and these retaliatory measures only add agony to the already direful depression.

The proof of these statements is so fresh in the minds of the older textile mill presidents that they need but to reflect upon the foreign markets that are now practically closed to them and the narrowing margins of other countries. Narrowing margins both as to quantity of goods and margin of profits. What has become of the East, the Mediterranean Countries, Africa? We say that South and Central America and Australia are now our most inviting markets, and yet a recent report issued by the Textile Department of the United States Bureau of Foreign and Domestic Commerce indicates that last year England increased in Brazil its exports in yarns more than 30 per cent, while the United States increased its exports to that country by only 2.6 per cent. In Argentina it is barely holding its own. There must be some reason for this.

Increasing competition,
Too many spindles—too many goods,
New and energetic competitors,
Too much individualism and doubt

These are some of the things discussed here. You of course are familiar with them. There isn't a new thought expressed in this article, so don't consider Marsden as a "Moses". But do read his suggestions, and write your own ticket.
—The Editor.

We hear some of our merchants and manufacturers talk about organizing export mergers to go out and break into foreign fields regardless of competitive conditions, that this loss in foreign trade can be offset by prices regained by lessening competition in the home markets. This is no new idea. England has already discussed this and probably tried it, and to all other countries we are foreign and our markets are open to them in the same way that theirs are to us.

But even if this were possible, would this be a fair and ethical procedure in world economics? The great trouble with so much of our industrial philosophy now is that it is built upon expediency rather than fundamentals and permanency.

So much for the foreign situation. Now let us turn for a moment to the domestic situation. Hundreds of textile mills are scattered from Maine to Mexico, throughout thousands of miles of area, in varying social and economic conditions. Each plant or company is an individual with very individualistic ideals. Theoretically, most of them are merged into some kind of an association to which they go and participate orally and pass resolutions, but out of these assemblies they go home and forget.

Their spindles hum rythmically and regularly, steadily and determinedly,—many of them day and night—North and South. Production pours forth in piles of staggering quantities. The home market is flooded, the foreign fields are flooded. Competition in foreign fields is so intense that the adventure seems too hazardous, so every man draws his knife and, in industrial battle, steps forth to take business—and often regardless of the consequences. To one who tries to reason and see why things are so, this seems so foolish—only another impulse of misguided expediency rather than carefully planned permanency of procedure.

People go into bankruptcy—people die—but plants and industries drive on until finally some man with abiding ideals picks up the tottering and depressed fragments and stiffens them with fundamental principles and safe economic laws.

But look again. Look at the silk and the rayon—the synthetics. A new competition made possible by invention, advanced economic conditions and advanced social theory. Everywhere, on every woman and girl and in every home and office we see the inroads of this competition. The sheen and splendor, the touch, the feel, the aristocracy, real or imaginary, are carrying them into the social sphere once occupied by the cotton textiles.

Jute and paper with modern science and improved factory methods are steadily and permanently pushing their wares and their utilities and cheapness into the ears of an ever believing public. Substitutes of many kinds, with dominant appeal and greater efficiency are surely making competition more intense by their usurpations.

None of these thoughts is new. There is not a new idea expressed in this article. The only reason for writing it is that these facts may be congregated and placed vividly before the reader in the hope that he will act rather than wait.

There then very naturally arises the question "Act how?" The answer is neither new nor difficult. The way has been paved. The action has been indicated and it was indicated by each mill man individually and collectively. The plans have been discussed so much that it is possible that there is hardly a mill man who has not taken part in them. Out of all of the discussions that have been held there seem to be four or five dominant decrees for action.

1. *Adjustment of production to demand stands out in the foreground.* No industry can prosper with continual pressure to sell its excess production. And no industry can guess what production and demand are. They can only be secured by carefully prepared statistics by some fair and unprejudiced source which cold bloodedly prepares them. This agency cannot prepare statistics of value and guidance, unless the mills are willing to furnish them. The Cotton-Textile Institute, Inc., would be worth every dollar that it costs any mill if it could have an opportunity to furnish to that mill the dependable statistics that it can, and if that mill receiving the statistics would govern its operations in accordance therewith.

2. *No market seems to be so demoralized as the textile market.* There are so many methods employed and so many deviations from these methods that any one trying to arrive at their number would have to employ permutations, combinations and the theory of

"MERGERS are necessary in the textile industry, not for the reason that mergers per se will lessen competition, but for the reason that larger groups of mills under one management or corporate management will reduce the hundreds of individuals, that now control, to a smaller number. A simple merger of mills would not change conditions today a particle unless the men in charge of the mills changed the industrial ideals now obtaining—and there is the possibility for good or bad, according to the industrial ideal back of the merger."

probability. How can a basic industry prosper under such a condition? Is it any wonder that, although new spindleage is placed each year, total spindleage does not increase neither does active spindleage?

Is there any wonder that jealousies and doubts and suspicions run rampant in the industry when so many people are doing business on such unscientific and uneconomic bases?

There is no doubt but that the selling and distribution end of the industry, if systematized and dignified, would give more confidence and solidarity to the industry than anything that could happen to it at the present time.

3. *A code of business ethics should be worked out with so much clarity and saneness and judgment that few could misunderstand and fail to adopt.* There is no doubt that many unethical practices obtain in the industry today. They are in all unrestricted and uncensored industries. They may not be there by choice and with malevolent intent. They may be caused by ignorance or misinformation, or lack of business acumen. They are there and they need to be cleaned out. Resolutions will not remove them. Action is the remedy. Confidence, not suspicion, is the basis of business. Trust and belief are the great healers of many maladjustments.

4. *Mergers are necessary in the textile industry,* not for the reason that mergers *per se* will lessen competition, but for the reason that larger groups of mills under one management or corporate management will reduce the hundreds of individuals, that now control, to a smaller number. A simple merger of mills would not change conditions today a particle unless the men in charge of the mills changed the industrial ideals now obtaining and there is the possibility for good or bad according to the industrial ideal back of the merger.

A merger is only a preparation for action of a constructive kind. It permits of an organization of sufficient strength to secure economic and sane administration. It reduces the number of people involved to a point where constructive policies are more possible of attainment.

There may be other actions necessary and doubtless should be suggested. The competitive period is not at all abating. It grows fiercer and more dangerous with each day. Does the cotton textile industry realize this sufficiently to take action to remedy the afflictions, or will this industrial war be waged until the managers slay themselves or be supplanted by those who see and know the causes and cures of the crime?

Greenville Show Next October.

A recent announcement from the offices of the Southern Textile Exposition concerns the Ninth Southern Textile Exposition, which will be opened in Textile Hall in Greenville, S. C., on October 20th, 1930, to run for the week. An exceptionally well displayed and arranged exposition is anticipated, and the usual means will be adopted for attracting a large attendance from mill men and others. The following information was contained in the Exposition's announcement some weeks ago:

A large permanent steel Annex will be connected with the main hall by an extension of the same size as was used in 1928. It will be one story high and of heavy fireproof construction. The ground has been leased and plans made. When completed all the exhibition space will be practically in one building.

The following exhibitors have definitely been assigned to space: Abbott Machine Co., Aldrich Machine Works, Allen Bradley Co., Allis-Chalmers Mfg. Co., Aluminum Co., of America, American Glanzstoff Corp., American Hard Rubber Co., American Moistening Co., American Wool & Cotton Reporter, R. S. Armstrong & Bro. Co., Armstrong Cork Co., Ashworth Bros., Atlanta Textile Supply Co., Bahnson Co., Barber-Colman Co., Belger Co., Chas. Bond Co., Bond Fdy. & Mch. Co., Borne Scrymser Co., Bowen & Hunter, Bristol Co., H. W. Butterworth & Sons Co., Carolina Supply Co., Carrier Engineering Corp., Celanese Corp. of America, Charlotte Leather Belting Co., Clinton Corn Syrup Refining Co., Clipper Belt Lacer Co., Cocker, Mch. & Fdy. Co., Consolidated-Ashcroft-Hancock Co., Cooper Hewitt Electric Co., Corn Products Sales Co., COTTON, Crane Co., Crompton & Knowles Loom Works, Crouse Hinds Co., Curtis & Marble Mch. Co.

Detroit Graphite Co., DeWalt Products Co., Diamond Chain & Mfg. Co., Diamond State Fibre Co., Jos. Dixon Crucible Co., Dodge Mfg. Corp., Draper Corp., DuPont Co., Durant Mfg. Co., Duriron Co., Eberhard Faber Pencil Co., D. A. Ebinger Sanitary Mfg. Co., Eclipse Textile Devices, Economy Baler Co., Fairbanks Co., Fibre Specialty Co., Fidelity Mch. Co., Finnell System, Inc., Firth-Smith Co., Fisher Governor Co., Foster Mch. Co., Foxboro Co., Frigidaire Corp., General Electric Co., Gilman Paint & Varnish Co., L. H. Gilmer Co., B. F. Goodrich Rubber Co., Graton & Knight Co., Greenville Textile Supply Co., Hires Turner Glass Co., E. F. Houghton & Co., Howard Bros. Mfg. Co., Howe Scale Co., Huntington & Guerry, Hyatt Roller Bearing Co., Illinois Engineering Co.

E. H. Jacobs Mfg. Co., Jenkins Bros., Johns-Manville Corp., Jordan Mfg. Co., Keever Starch Co., Keystone Lubricating Co., Kubar Mfg. Co., Lambeth Rope Corp., W. T. Lane & Bro., A. C. Lawrence Leather Co., F. A. Lazdnby & Co., Lestershire Spool Mfg. Co., Link-Belt Co., Lockwood, Greene & Co., Lunkenheimer Co., Manufacturers Record, Mathieson Alkali Works, McLeod Leather Belting Co., Merrow Mch. Co., Morse Chain Co., National Tube Co., N. Y. & N. J. Lubricant Co., Oakite Products, Inc., Odell Mill Supply Co., Parks-Cramer Co., Penick & Ford Sales Co., B. F. Perkins & Son, Inc., Permutit Co., Philadelphia Belting Co., Philadelphia Drying Mch. Co., Plibrico Jointless Firebrick Co., Powers Regulator Co., Racine Tool & Mch. Co., Reeves Pulley Co., R. I. Warp Stop Equipment Co., H. H. Robertson Co., Rockweave Mills, Inc., Rogers Fibre Co.

Shambow Shuttle Co., Sherwin-Williams Co., Signode Steel Strapping Co., Simons Paint, Spray Brush Co., J. E. Sirrine & Co., S K F Industries, Inc., Southern Textile Bulletin, Spartanburg Mill Supply Co., Stafford Co., Standard Chemical Products, Inc., Standard Looms, Inc., Steel Heddle Mfg. Co., Stein, Hall & Co., Sullivan Hardware Co., C. J. Tagliabue Mfg. Co., W. O. & M. W. Talcott, Inc., Taylor Instrument Cos., Terrell Mch. Co., Texas Co., Textile Finishing Mch. Co., Textile World, B. Thies, Inc., Timken Roller Bearing Co., Toledo Scale Co., The Torsion Balance Co., Transmission Ball Bearing Co., U S Bobbin & Shuttle Co., U. S. Electrical Tool Co., U. S. Ring Traveler Co., Universal Winding Co., Vacuum Belting Co., Veeder-Root, Inc., Viscose Co., Washburn, Western Union Telegraph Co., Westinghouse Electric & Mfg. Co., Westinghouse Lamp Co., Whitinsville Spinning Ring Co., J. H. Williams Co., T. B. Woods Sons Co., Worthington Pump & Mch. Co.

The Handling *of* Materials *in* TEXTILE PLANTS

By R. S. Kerr*

THIS IS an interesting description of the major forms of material handling, applicable in various types of textile mills. In the mill, material handling consists essentially of transferring the stock in process from one department to another, and for handling raw and finished materials. While conditions alter circumstances, we feel there are many opportunities, until now neglected, for such equipment in many mills, and Mr. Kerr's description presents the various types which are available.—THE EDITOR.

TEXTILE PLANTS are coming to realize the importance of increasing the capacity of that class of labor which is chiefly engaged in moving materials within the plant. For the magnitude of the task is apparent when it is considered that for every ton of finished cloth, somewhere between ten and twenty tons of raw materials must be handled. It is estimated that a plant employing 1,200 men uses 200 of them for this purpose.

Such an important part of the plant operation cannot be neglected by any company which expects to survive in these days of keen competition. The race is to the swiftest, and while fortune bestows her favors more lavishly than ever before, she distributes them more carefully and to fewer.

Gone are the days when it was possible to sit tight and "grow with the country." Business has attracted the keenest minds of the world-men forever dissatisfied with existing methods. Under their leadership old "rule of thumb" methods have given place to scientifically applied principles of manufacture, management and distribution. The lines are tightening, and the fight for the consumer's dollar increases in intensity.

Under these conditions no stone can be left unturned if there is the faintest suspicion that it may uncover a vein of extra profits or hidden costs that can be reduced.

The discovery of the hidden cost of material handling is comparatively recent, so recent that its importance is not yet fully realized nor commonly accepted. Business is still prone to move materials by the same "coolie" methods that built the Pyramids.

Business men have long appreciated what it costs them to bring in raw materials by rail, and the greater cost of shipping out the finished product. Traffic departments have made a ceaseless and successful fight to reduce freight charges, but the same fight has not been waged in many plants against a cost that is almost as great.

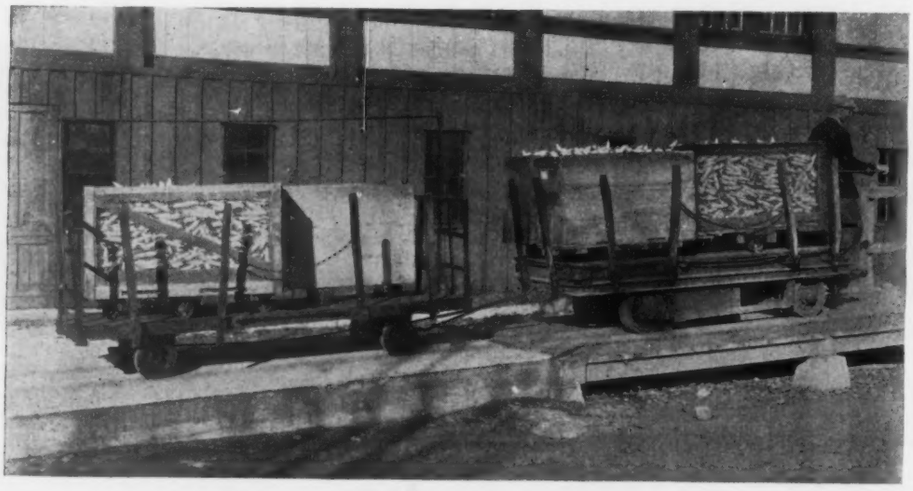
What a potential field of economy exists here! Substantial savings have already been effected in it by a few pioneers. Others are following as fast as their eyes are opened to the amount of money they are spending every year for materials handling.

They have found it worthwhile, but first, they had to dig deep into their cost records to get the facts that opened their eyes.

In Many Plants Cost of Materials Handling Is Buried Alive.

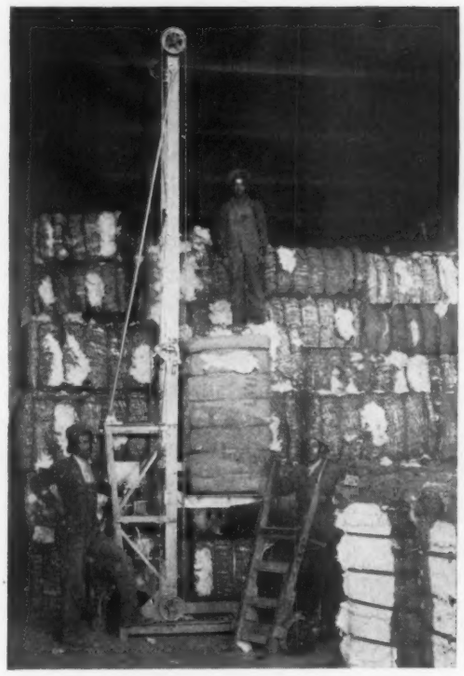
The actual processing of materials is constantly being studied in minute detail, and the cost of every operation recorded with great care. But the handling of materials, so costly that it has been known to constitute over 80 per cent of the production cost in one plant, has largely been left to shift for itself.

*With Kerr-Thompson Co., Atlanta, Ga., material handling engineers.



A southern mill with its spinning in one building and weaving in another, uses this electric truck with trailers for transporting filling yarn.

Photo, courtesy Kerr-Thompson Co.



A portable elevator used for stacking cotton six bales high, at a southern plant.
Photo, courtesy Economy Engineering Co.

And all the time materials are continuously on the move. Hungry machines must be fed. The importance of feeding them overshadows everything else and accounts for the fact that, too frequently, there is utter oblivion to the cost of feeding. It is not a case of "hang the expense"; it is simply that the costs do not register.

They are there and very much alive insofar as their effect on the balance sheet is concerned. Searching through the mazes of the accounting system they are often found in that graveyard of profits-overhead. They masquerade under the name of labor. They fasten themselves like leeches to other ledger accounts. They even penalize that god of the factory world—production.

Unfortunately, the accounting systems of many business organizations bury their materials-handling costs in just that way .

As long as materials handling is left out in "no man's land," where it is nobody's business, unnecessary costs in the mill will continue to divert legitimate profits from the management and stockholders.

Nothing constructive can or will be done until to some particular individual, or preferably a group of them, is assigned the definite task of developing and carrying out a program for the betterment of materials handling operations.

The combination of the various means of material transport, such as trucks, cranes, elevators, etc., into one department makes possible quicker and more efficient service, for in most cases material is handled by more than one transportation means before it reaches the shipping floor in its finished state. Thus, with the various units closely linked together and under one control, no time is lost in transfer and the proper method is used at the right time.

This in itself is an argument in favor of centralized control of all material transportation activities, for in considering materials handling problems, no general engineering formula can be applied, but all available means of transportation, and their relation to one another, must be considered before the best solution can be reached.

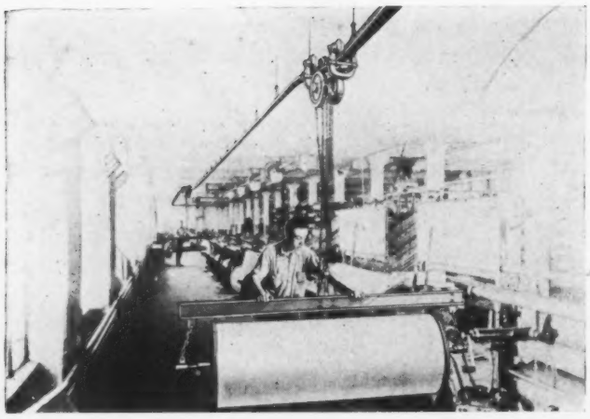
Whatever the size of the company, the same principle can be applied, and results will be secured if proper care is exercised in the selection of the men in charge of the work. They must be men capable of viewing materials handling not as a function only vaguely related to production, but as an integral part of mill operations.

The usual concept of industrial transportation problems has been confined to the man-saving, the labor-saving functions. True it is that this one element alone has already effected such great economies as amply to justify the time and thought spent on its development, but without minimizing the self-evident values of this one economic function, the broad principle behind the movement still seems to be but imperfectly understood and insufficiently applied to use.

The industry of the future will, in my opinion, devote as much time to a scientific co-ordination of its manufacturing and materials handling elements in their relation to production flow as it now devotes to the invention, design, and manufacture of its pro-

Hand-lift truck used for trucking of cloth, at a southern mill. The rolls are stacked three at a time on the platforms in the warehouse.

Photo, courtesy Stuebing Cowsen Co.



Overhead trolley for handling full and empty beams.
Photo, courtesy Cleveland Tramrail Co.

duct and the machines that make it.

Synchronized material movement and the grouping of production processes are important principles in the proper working out of the transport science in production. Systems of conveying properly applied may enhance production 10, 25 or even 50 per cent, with the same man-power and machine equipment.

Flexibility of the Power Truck.

The power truck is flexible, and this attribute has earned for it a place of great importance in materials handling operations. Its area of use is not limited, as is the case with fixed types of equipment. Nor does its introduction require costly rearrangement of plant layout and production facilities.

Swift, powerful, and easily operated, it can go almost anywhere that a man with a hand truck can go. Its initial cost is relatively small, and under normal conditions it pays for itself quickly.

These characteristics make power trucks indispensable, whether they are teamed up with other types of handling equipment, or relied upon exclusively to carry the entire burden of material movement.

One obvious advantage of power trucks is that they may be purchased one or two at a time, and

Special warp beam racks in a New England mill. Beams are supported by their spindles, which roll onto the skids of the rack.
Photo, courtesy Economy Engineering Co.

others added gradually as each unit pays for itself.

The term "power truck" is practically synonymous with the storage battery industrial truck, so widespread is its use in the internal transport of materials, where it is working wonders in reducing the cost of intra-plant haulage.

Electric Industrial Truck Plays a Big Part.

It has not won its prestige easily. Inertia of logical prospects, lack of appreciation of its adaptability, and the impression that it is too costly except under ideal conditions, have all combined to retard the advance of the electric truck.

But advanced it has, on sheer merit, backed by the progressive spirit of its manufacturers, who have

A well-known southern mill uses an electric truck and trailers to carry warp yarn, through a covered passageway, from spinning mill to high speed spoolers.
Photo, courtesy Kerr-Thompson Co.

steadily added new types and auxiliary attachments to meet different requirements, until today it is an unusual handling problem indeed that cannot economically employ one or other of the many varieties of electric trucks.

There are five major types of electric industrial trucks; the straight platform truck, the low-lift truck, the high-lift or tiering truck, the crane truck and the tractor. Modifications of these standard types are numerous, accomplished by means of equipment added to or substituted for the regular equipment.

It should not be difficult to find, among so many, a type of electric truck ideally suited to some particular operation now performed by costly, slow-moving manual labor. Moving eight times the load of a hand-trucker in one-third the time, it is estimated that the electric truck is capable of releasing for other work anywhere from two to 35 hand-truckers.

(*Continued on page* 274.)

Cost Application *of* Mill Expense

By E. G. Field
Wm. H. James & Co.

MR. FIELD here explains the correct method of assigning mill expense in the determination of costs, pointing out incorrect and misleading methods used by some mills. He emphasizes that any mill using the theory that mill expense—indirect labor and other manufacturing expense—is proportional to labor, may be misled into unfair competition for lowest priced merchandise that offers the least opportunity for any profit.

You and your cost man will be interested in his discussion.

WITH A MILL producing sheetings, the conversion cost* may be composed of these parts:

Direct Labor—		
Piece Work	32	per cent
Day Work	8	
	40	
Mill Expense	60	
Conversion Cost	100	per cent

This division is quite customary, although some mills exclude from mill expense all labor items. The payroll items that may be included are shown in this list of the *mill expense*:

Indirect Labor—		
Processing Departments	14	per cent
Service Departments	8	
Total	22	
Other Manufacturing Expenses	38	
Mill Expense	60	per cent

While about two-thirds of the labor payroll may be readily identified with the product worked upon, the other third, as represented by the 22 per cent above, must be applied in the product cost. It may also be of interest to note that the other manufacturing expenses, exclusive of all labor, are about equal to the processing direct labor.

The determination of direct labor costs should present no great difficulty. The direct labor costs for individual yarns and products may be calculated according to the piece rates or the labor per machine and the production therefrom. These costs may be proven by extending the production and comparing with the totals as obtained through use of a suitable classification of the payroll.

In many instances the indirect payroll in the processing departments is included with that for the direct operations. Other mills treat this item as solely a part of mill expense. In practice there is, however, usually an advantage to determine the indirect labor cost separately and then add it to the direct labor, thus obtaining a processing labor item.

The *service departments* represent those not working directly upon the product, but necessary in order that the processing departments may function. Among the service departments may be found: machine shop, power plant, yard crew, village maintenance, etc. These are essentially mill expense, since they furnish services along with other like expenditures made for the mill.

The *other manufacturing expenditures* include: supplies, maintenance and repair, power and light, heat and steam, employee insurance, depreciation, taxes, and plant insurance. They make up the balance of the conversion cost necessary to deliver the goods at the shipping platform.

When determining a cost over cotton it will be required to add the general administrative and financial expenses. As selling expenses are usually dependent upon selling prices, they are commonly deducted therefrom to arrive at prices net to the mill. These trading expenses, being of a more or less variable nature and not being recognized as part of the inventory costs, are not included in this discussion.

Having singled out the mill expense items, there should be no practical difficulty in collecting the amount of the charges. This is a part of the regular accounting routine.

Following the collection of the mill expenses, many mills attempt at once to apply the amounts to the various products. Some small mills may honestly believe that they can not afford to make any secondary step of distribution of these charges to the respective points where contact is made with the product in the various processing departments. Generally, they are correct in that methods requiring monthly long, repetitive calculations of this kind would be unwarranted. However, modern practice has developed a practical procedure to meet this need.

This distribution of mill expense to the processing units does present many questions. Some differences of opinion naturally exist but to a large extent these viewpoints are influenced by local conditions.

In commenting upon some of the methods in common use for applying the mill expenses to product costs, no detailed exposition will be given. The principles are of more importance.

When mill expenses are applied directly to product costs without passing through the step of distribution, there is no scientific or technical reason employed. Many hypotheses may be substituted. These assumptions vary greatly in the methods of different mills.

The four most common of these theories are:

(1) All expense items are applied at a fixed or average cost per pound regardless of differences in the

Figures on the range of conversion cost were given in an article, "Why Individual Fabric Costs?" by this author, which appeared in the May, 1929, issue of COTTON.

product.

(2) All expense items are applied *pro rata* to the yards per pound, to the average yarn number, etc.

(3) All expense items are recalculated upon assumed conditions of the same expenditures applicable to the entire plant engaged upon only one fabric. There are several modifications of this plan dependent upon what part of the equipment would be long or short for the immediate need.

(4) All expense items are assumed to be proportionate to the direct labor or to the total labor. In the latter instance, the labor has frequently been calculated incorrectly as may also be true in the other cases.

Many mills have passed through successive periods of experimentation with these theories. A brief study of their hypotheses and the truthfulness thereof will often absolutely discourage further consideration of cost methods. Able managers have been driven from using cost figures so predicted because of their apparent absurdities. Others in their struggle have endeavored to use them while searching for something better.

The first three false assumptions do not need any specific argument here. The fourth case may warrant a brief examination since it is apparently being encouraged by some executives who have not given it serious thought.

How much of the present inadequate differentials between the market prices of many regular products is due to demand and production or to fundamentally false information as to their relative costs, is not easily proven.

In any mill making a somewhat diversified product or starting to make specialties, the assumption that mill expense varies in direct proportion to labor may result in breaking that mill financially within a few years.

One illustration is here offered to show the fallacy of Case 4. For simplicity, the illustration is confined to a single department, the operation of weaving:

Data:			
Weaver paid $3.00 for 10-hour day.			
Weaver's average run is 20 looms.			
Weaving expense averages 180% of weavers' payroll.			
Looms per Weaver	30	20	10
Case 4, with Mill Expense proportional to Labor:			
Direct Labor per Loom-Day	$ .10	$ .15	$ .30
Weaving Expense per Loom-Day	.18	.27	.54
Operation Cost per Loom-Day	$ .28	$ .42	$ .84
Another Method, with Mill Expense determined per Average Loom-Day of this size:			
Direct Labor per Loom-Day	$ .10	$ .15	$ .30
Weaving Expense per Loom-Day	.27	.27	.27
Operation Cost per Loom-Day	$ .37	$ .42	$ .57
Results by Case 4:			
Error	$ .09	----	$ .27
Understatement	%24.3	----	----
Overstatement	----	----	47.4

"OF the various troubles besetting the textile industry, the lack of sound costs is probably the foremost contributor. There is no reason for this condition to continue. When an industry is equipped with reasonable costs, its management will be supported in working out its other difficulties. In the meantime, the individual mills that properly apply their mill expenses as part of a well grounded cost procedure, are helping themselves to more profits by selecting the right products for the most advantageous use of their equipment."

This error increases more rapidly with departures from the average. The fiction of this expense as a percentage of labor may be demonstrated by considering that the loom production should be sold on items using 30 looms to the stand. The erroneous theory would state the mill expense of this operation at only 18 cents per loom-day while the actual expenses would be found to remain approximately at 27 cents and there would be left 9 cents per loom-day to be deducted from the anticipated profits.

In the foregoing illustration it may be readily observed that *any mill using the theory that mill expense is proportional to labor may easily be misled into unfair competition for lowest priced merchandise* that offers the least opportunity for any profit. In practice it is common to find such business sucking away the profits being earned on other products.

On the other hand, the class of merchandise offering profitable employment for the equipment is being turned away from the mill by fictitious figures that place the mill outside of the market for the higher priced merchandise.

It is the absurdity of some cost figures that prompts many managers to continue taking business regardless of the "so-called" costs furnished to them. This refusal to be scared by unexplainable costs often continues the mill in business contrary to the dire prediction of the accountant with an elaborate cost system. How much better it would be for the able manager if he could be assisted by proper costs!

There is no reason why any mill should not have adequate costs, reasonably correct and obtained in a practical way, understandable to all the orgnization.

Reliable individual costs for any variety of products may be readily obtained by distributing the normal mill expense to the various operating units. These expenses for each operation may then be applied to the product of that operation to obtain the operation costs. These operation costs can then be quickly assembled into fabric costs, one for each product. The principle is sound, the procedure is simple, and the costs will be correct for practical use.

Of the various troubles besetting the textile industry, the lack of sound costs is probably the foremost contributor. There is no reason for this condition to continue. When an industry is equipped with reasonable costs, its management will be supported in working out its other difficulties. In the meantime, the individual mills that properly apply their mill expenses as part of a well grounded cost procedure, are helping themselves to more profits by selecting the right products for the most advantageous use of their equipment.

Observations of HANK G. SPINDLE, SUPERINTENDENT

By H Gilmer Winget

Article V

WE WOULD NOT have imagined that a man would talk much about business while he is fishing, but it appears from this article that HANK G. SPINDLE is just as loquacious on the river bank as he is in his office. At any rate, he talked very interestingly, between bites (if any) about the importance of opening and preparing cotton, and Mr. Winget has set his ideas down in the accompanying article. Don't forget that HANK will be glad to discuss any subject of interest which you may submit. — THE EDITOR.

I OWE COTTON'S READERS an apology. I should have stated in previous "OBSERVATIONS" that Hank is a fisherman of no mean attainments. I do not know of anything that he would rather do than go fishing. Now, those of you who fish, can appreciate the value of his "OBSERVATIONS," or at least you can put the proper constructions on his opinions.

Only a short time ago his wife told me that when Hank was gathering up his rod and reel and other fishing paraphernalia that he was happy and agreeable. She said that he would eat anything left over from the previous meal without complaint, rather than lose a few minutes waiting for fresh food. Those of you who match your wits with the finny tribe know that when a fellow is fishing, he is usually in an affable, as well as a meditative mood.

Sometime ago Hank and I were seated on the bank of a river near Bridgewater, a cool, shady place. The fish were biting rather timidly and we fell into a discussion of mill problems. I said, "Hank, much has been written and said in recent years about the opening of cotton preparatory to spinning. What is your opinion about the importance of opening and mixing?"

"Importance," said Hank, "well, I cannot think of anything more important and more necessary to the production of good yarns than adequate opening and mixing machinery. Neither do I know of any factors in the manufacture of yarns that have been given closer attention in recent years, or improved more in the methods and equipment, than those of opening and mixing.

"I recall how this opening and mixing was done in the 90s. The bales were brought into one corner of the picker room, opened up and heaped in a small corner. The card room waste was thrown in a little at a time as the cotton was heaped up. This waste, however, only lasted for a short time, thus part of the opening had waste and part did not. This was the method employed in the mill that honored me by allowing me to run the slubber, one set of drawing, and doff the front of the railway heads. However, all of that is another story and would not have been mentioned, except for the fact that I often helped to mix the cotton. You see, when the card room ran ahead, all of the male employees left their respective machines and helped to mix the cotton. I dare say that this method was in general use from the 90s through 1910.

"The opening machinery consisted of a hopper at the front of a machine that usually was equipped with two beaters of the two-blade type, and when the cotton came from the front of this machine in the form of a lap, the entire operation of cleaning had taken place. What the pickers failed to get out in the way of motes, leaf and dirt went to the cards, which were more or less taxed to turn out clean sliver. In fact the clean bales came through clean and rough, while dirty bales came through with a lot of leaf and dirt in the laps.

"Usually the first pickings of cotton were clean and those picked later in the Fall were lower in grade, but whether clean or dirty, the cotton was always put through the pickers at the same speed, getting the same number of beats per inch, which, of course, caused a variation in cleanliness. Thus the card was made to do work that should have been done in the picking process.

"Many mills have good equipment for cleaning today, but the truth is that many more mills have neglected to install this all-important equipment and where inadequate opening and cleaning machinery is not used the quality of yarn will suffer. No matter how good you think it is, it would be bettered by the use of a good cleaning system.

"Within recent years the opening of the bales has had especial attention. There was a time when five to ten bales was considered sufficient for good mixing, but we no longer think so, as is evidenced by the fact that many mills have erected opening rooms that will permit the opening of 50 to 100 bales in a single bin and this is left to age a day or two, while the cotton from a similar bin is made into laps.

"In order that a picker may be able to perform the function for which it is used, the cotton should go in-

IF YOU ever run across anything in Hank's Observations upon which you would like to comment, please remember that the "How Other Men Manage" department is open for a letter from you. We shall be glad to have you discuss any experience which you may have had, any test you may have conducted, and to express any opinions of yours concerning mill work —as well as to ask any questions for general discussion pertaining to any subject in which a mill would be interested.—The Editor.

to the beaters thoroughly loosened up. There are of course a number of opening machines on the market today that will open the bales and make them loose and fluffy, so that the beaters may clean the cotton in a satisfactory manner. Of course I have my idea about which brand is best, but having not used all the brands I am not sure that my opinion would be absolutely correct, but I do know that any of them is a great improvement over the old systems.

"It is false economy to be without opening machinery. You are paying for the equipment whether you have it or not, so why not use it? If a mill continues to force the cards to do what the opening and pickers should do, then the mill pays for the opening machinery in the first renewal of card clothing and flats. With cotton of today, boll weevil bitten and poorly ginned, as well as poorly picked, the character of cotton having become poorer and poorer, the need of good opening and picking is more imperative than ever and if it is not used, the cards have a larger burden and you will have paid for opening machinery without realizing the use of it.

Then, too, consider the poorer quality of yarn that is produced, which in this day of keen competition is an item worth thinking about. No, I am not interested in the sale of any of the systems, and these opinions are given based on actual experience of myself and others.

Great care can be taken in the mixing and ageing of cotton, but regardless of how much ageing and good mixing is done, the opening machinery must be used to obtain the very best quality of yarns.

"I have in mind a mill that installed a bale breaker in 1920, a new mill. The breaker was a good one of its kind and was recommended by the machinery people, yet it had no beater of any kind in it. All that it did was to loosen up the cotton somewhat, after which it was drawn over by air to the pickers. After some time a change was made, an up-stroke cleaner and two sections of C. O. B. machines were installed. On actual test the up-stroke and the C. O. B. machine removed only about one per cent of the dirt, motes and leaf, but when the cotton was delivered to the picker room it was found that twice as much motes and dirt were being taken out under the beaters. In short, by the proper loosening up of cotton, the picker better performs its function and the result is a more even, cleaner lap and yarn."

I then asked Hank what type beaters were used and whether or not the speed was reduced.

He replied: "The breaker pickers are equipped with beaters of the 3-blade type, and as the speed was already law it was not changed. The finishers have the three-wing carding beaters, and as they too were running slow at the time of installation of the beaters, their speed was not changed. The beater in the up-stroke cleaner is about 41 inches in diameter and is a Buckley beater. It is set in ball bearings. It is claimed that this beater is so arranged that the stock is twice combed during the short time it takes for it to pass through the machine. The beater strikes the stock against 65 keen-angle dust bars. According to many, down-stroke beaters of every kind suck the air through the grids and therefore suck a large per cent of the dirt and leaf, which had already been knocked out, back into the stock as it is passing through. While on the other hand, the action of the up-stroke is opposite and the air is sucked through after the cotton is cleaned. I have found that there is a certain amount of truth in the foregoing, but I have also found that often a mote is knocked out on an upper grid only to drop down to be sucked in at a lower grid. This, however, happens on pickers, too.

"Speaking of speeds of beaters, we agree now-a-days that beats per inch is the logical and best way to think of speeds. I have been asked whether I favor high or low speeds on beaters. I would say that this depends very largely as to whether a mill is equipped with adequate cleaning machinery or not. The idea is to clean the cotton and put it into a workable condition so that when it reaches the cards they can do their duty and produce clean sliver. Now it is obvious that if good cleaning machinery is used that there will be less reason for high speed beaters.

"My judgment is that to obtain the best breaking strength, beaters should be of the Buckley and carding type, but, my experience has also been, that the Buckley and carding type beaters do not clean as thoroughly as the 3-blade beater type. It is then reasonable to say that if, on account of inadequate cleaning machinery, you are now having to clean cotton with the 3-blade beater in breakers and the carding beaters in finishers, there is no hope of reducing your beater speed in quest of breaking strength. I tried that one time too many myself and it was a flop. We increased the strength all right, but we also increased the dirt, leaf and motes, which caused us to change quickly back to the old speeds.

"It is my opinion that the only way to get good, clean, strong yarn is to have a good cleaning system installed, and be sure that the cotton is thoroughly opened, mixed and cleaned. It should then be passed through Buckley and carding beaters. However, I am equally sure that if you have no cleaning machinery, you are forcing the cards to do work that should be done in the opening and picking and, in that case, if you are now using a 3-blade beater in your breaker picker, you had better stick to it for the sake of cleaning.

"As I have already said, this is one man's opinion, based on experience. . . . "

"Say, did you see that strike? I hung him, but he got away. Bet he would have been some fish. He must have weighed six pounds. It makes me sick to lose a good one like that. Don't it hurt to lose a big one?"

The Effect *of* Constant Humidity

By Charles H. Forsaith

IN this report, Mr. Forsaith tells of a humidity condition under which he weighs his picker laps only twice a day, never changes a twist gear on slubbers and intermediates, and very seldom changes a tension gear—no matter what the weather may be outdoors. The chart accompanying it is enlightening, and you will find his article interesting. This paper was presented on Alumni Day recently held at the Lowell Textile School.

AT THE JACKSON MILL of the Nashua Manufacturing Company, where Indian Head Cloth is made, we have a concrete mill humidified by a central station system. That is to say, air is taken into the system in the basement, where it passes through water sprays and becomes saturated. This saturated air is pushed up large ducts on the side of the mill with openings into each room. As this saturated air enters the room, its temperature is raised so that by the time the air actually comes into the room its relative humidity has been dropped from the saturation point down to the predetermined standard for that room.

Under proper design and an available supply of cold water, not only the relative humidity but the dry-bulb temperature of a department could be held at any desired point. The outlets for this air are so situated that the air must sweep over the entire room before it can escape, and therefore much more uniform results are obtained than would be possible in a system of humidification in which there is no mechanical attempt to move the air. Needless to say, there are very few windows in this mill that can be opened, and we have strict rulings as to just when they shall be open.

I am going to assume, therefore, that we have a mill in which each department is maintained at a constant relative humidity. We shall see just what effect this has on the regain of the cotton as it passes through the mill.

In order to test the results of our constant standard humidities, samples of cotton were taken before and after each step in the process of manufacture, sealed in glass jars, and then baked out to note the percentage of regain. The results were plotted for convenience; and if you will look at the chart, you can follow the cotton through the mill. The chart shows the time of readings, the department where taken, the machine, the indoor humidity near the machine, and the outdoor humidity taken at the same time. A few outstanding notes in regard to the conduct of the test and the results obtained are as follows:

In taking the samples of cotton in the various stages of manufacture, we did not attempt to follow the same cotton, but we did take the samples in the regular order of process and took each at a time when we figured the cotton which we originally took from the bales might have reached the place in question. In every instance the samples of cotton were sealed up in glass jars and held in the department in which they were taken until we were ready to dry them out.

In one instance, however, we did follow the same cotton. We saved the roving which we tested from the intermediates and used it as a back feed on the warp and filling spinning frames for the bobbins we intended to test. In the 18 hours the roving was in the spinning room before using, it gained about ½ per cent, or went from 6½ per cent regain up to 7 per cent.

In all cases the back feed and product of the front of the machine were taken at the same time, and therefore came from the same cotton. As would be expected, it showed very little variation in moisture content. It is interesting to note, however, that the spun yarn, both warp and filling, contained noticeably less moisture than the back-feed roving. The warp showed a greater difference than the filling, no doubt due to higher speed and lower surrounding humidity.

In instances where the material stood as it normally would in between processes in running through the mill, it took up moisture as follows:

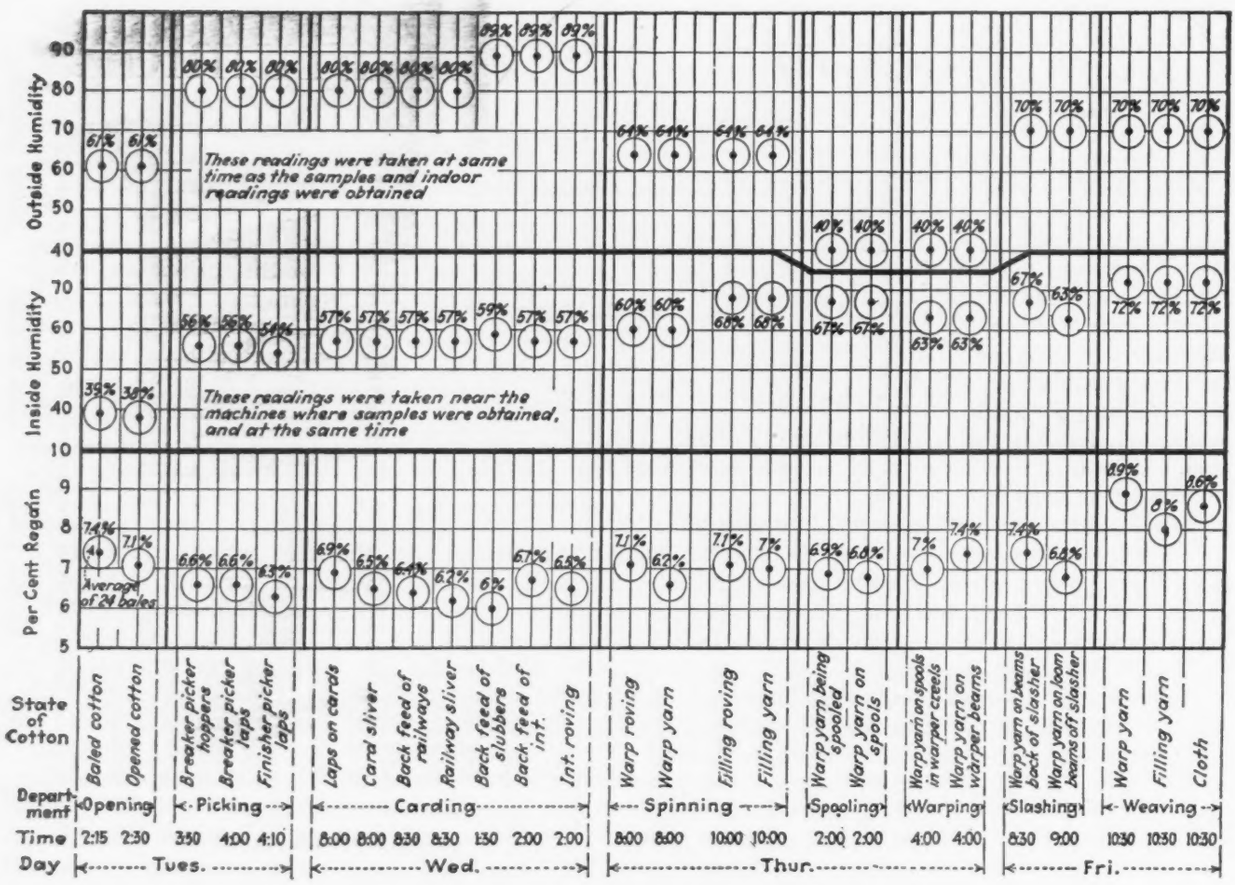
	Per cent Regain
The laps off the finisher picker showed	6.30
Laps on cards next day showed	6.90
Intermediate roving showed	6.54
Used in spinning room next day, same roving showed	7.00
The warps off the slashers showed about	6.80
While warp yarns on loom beams nearly woven out showed	8.90
Filling yarn off spinning frame showed	7.05
While filling yarn in batteries showed	8.00

The cotton in the 24 bales from which we took samples varied in regain from 6.1 per cent to 10.1 per cent, a variation of 4 per cent. As soon as the cotton was opened up and blown to the picker room, this variation practically disappeared. The maximum variation showed at any one process was 1.6 per cent. From the table and the chart it is apparent that the cotton for a time actually lost moisture, until it was nearly through the carding department, and then the regain steadily increased up to the cloth, which contained slightly more moisture than the average of the cotton bales tested.

For a total variation in outdoor humidity of from 40 to 89 per cent, we found our indoor humidity practically unchanged; for the various departments it varied but slightly from our standards.

And now let us summarize some of the results of the elimination of this variable humidity.

(1) *Very slight if any loss due to lack of regain.* They tell me that back in the old days they would always end a period with a considerable invisible waste. Now when we close a period, we very seldom have any invisible waste; that is to say, the cloth made during any three months' period plus waste sold or thrown away will more than equal the pounds of cotton fed in. In fact, one year late in the season when the cotton



Four-Day Record of Outside and Inside Humidity and Regain

we bought had been in storage for a long time before being shipped to us, and must have been below normal in regain, we showed quite a large gain.

(2) *Better running work.* I think this needs no enlargement.

(3) *More uniform-running work.* A great many manufacturers without humidity in their picker room insist that laps not weighing within one-quarter or one-half pound either side of their standard, be run over again—this with doors and windows in the picker room wide open and no account being taken of atmospheric conditions. When our picker room was first started, a set of scales was designed in which about a pound of cotton was to be suspended in a basket, and the scale beam on which the weight was to be measured was graduated to show the total pounds that the picker lap must weigh. Of course the variable here was going to be the amount of the moisture in the cotton. It was found, however, that with our picker room under controlled conditions of humidity this pound of cotton changed in weight not at all, and we therefore operate the scale only occasionally as a check, and we only weigh our picker laps twice a day.

On the slubbers and intermediates the constant conditions of humidity show themselves as far as the uniformity of running conditions go in that we never have to change a twist gear no matter what the weather may be outdoors, Summer or Winter, and we very seldom have to change tension gears. I believe this to be a most important result.

(4) Better working conditions for the help, meaning less labor turnover and happier, more contented operatives.

(5) Increased production.

Outstanding Cottons For 1930 Reviewed.

Outstanding cottons for the Spring and Summer seasons of 1930 were recently reviewed by a group of fashion authorities who selected representative fabrics for the next collection of samples to be distributed by The Cotton-Textile Institute.

From the standpoint of size, the collection examined was the largest and most representative that has been submitted to the Institute since it undertook its promotion of styled cottons. Members of the group which made the selection were outspoken in their praise for the excellence of coloring and the novelty and freshness of the patterns.

It was also noted that the fabrics reflected pronounced advances in styling that enhance the distinctive advantages of cotton and make them suitable for the requirements of the new mode. A more varied development of cotton costumes for Spring and Summer will be possible because of the originality of new construction and patterns.

As finally selected, the Institute's collection of samples for its third swatch book will include fabrics for active and spectator sportswear, for informal afternoon and formal evening wear, for beach costumes and a great variety of children's dresses.

Gates Rubber Co. Appoint Southern Representative.

Fred Siegrist, sales engineer, Vulco rope division of the Gates Rubber Co., Denver, Col., has been appointed southern representative for this company, with offices at 231 Healey Bldg., Atlanta, Ga.

CURRENT TOPICS

"Pictorial History of Textile Machinery"

ON PAGE 306 of this issue is begun a feature which should be of general interest. It is "A Pictorial History of Textile Machinery," and will show photographs of some of the original and earlier types of the machinery used in textile mills. The first, appearing this month, for example, gives an excellent view of Arkwright's carding engine, or card, of 1775. Subsequent installments will show and describe other familiar machines of today, showing how they appeared at their inception, and pointing the contrast between the original machinery and that in operation today.

On a recent visit to Europe, Professor Charles E. Mullin secured the photographs in this series, and he has prepared the descriptive information of the machines.

It is hoped that the presentation of this series of illustrations and descriptions will prove interesting and informing.

FOR THE COTTON INDUSTRY and the whole economic structure of the country, perhaps the chief issue from the fall interruption to a dangerous movement has been the nation-wide co-operative effort headed by President Hoover to restore a healthy spirit. The financial situation was dangerous, because it was focusing undue attention upon stock speculation and thereby distracting men in all lines of business from giving a proper amount of energy and direction to their particular interests.

The Stock Market and Cotton Textiles

However this be with textile manufacturers, it has nevertheless become their concern for the case was so widespread as to involve all directly or indirectly. The result of the speculation was an inflation which toppled over when the pile of blocks became unbalanced. The inflation found its own remedy. But it was a vessel of which the wake threatened to draw down the drifting craft of industry and merchandising.

Recent years have brought to the fore almost as a slogan the word "co-operation" in industry. But it has been co-operation of units in each separate industry. Now we have something unprecedented, in a joint co-operative effort of the leading industries of the country. The cotton industry, be it said, has occupied its proper place. The results of this movement well may set a precedent for the economic future of the world. If successful, it undoubtedly will.

What the results will be, should begin to appear soon and whether fundamentally sound economic conditions can withstand the shock of a stock market debacle of the recent kind is a matter of deep concern to the country. It was adduced recently in these columns that the cotton industry of the world was a closely inter-related organization of national groups. In the present situation it is timely to cite the interdependence of cotton and other industries of the United States. Consideration of developments in all lines is a prime need of cotton manufacturers, for the outlets of their production are measured by the activities of other interests and directly governed by them in a great many cases, so ramified are the uses of cotton yarns or fabrics.

Among the outstanding developments associated with the Washington conferences has been the raising of the minimum wage for workers by Henry Ford. No one can say that the cotton and the automobile industries are at all comparable as to wage conditions. In fact one would hazard the assertion that the Ford Company is not comparable even to most units of the automobile industry. But the whole industrial world has its common labor problem and any phase of it has a bearing on the whole. If an exact lesson can not be drawn for others from the Ford program, at least this step enjoins upon all to give the closest application to the problem of improving relationships with the workers in the plants.

Closer Relationship With Workers Needed

To be fair in this matter, we cannot or would not have reason to, ignore the favorable reports that have been issuing of late concerning efforts of mill owners here and there to raise the standards of relationships with the employees. And of course the matter of efficiency in production must be considered by manufacturers when wages come into discussion. This is something dependent upon the attitude of the workers, as well as economic pressure, and all are aware that it is a large consideration in the Ford scheme of things.

It is rather late or superfluous to add anything to the tremendous grist of comment regarding the healthy position of industrial America, as it emerged from the disquieting position in which it was placed by the securities demoralization. The encouraging thing at the start of 1930 for the cotton trade is that the industry was ready, with stocks in good shape, to take advantage of the first signs of active demand. The necessity for broad curtailment was recognized and, though early December produced unwelcome price-cutting, sellers were not pressing goods and they were looking confidently to an upward turn of the market so soon as the dull period should end.

"Sometimes Biters Get Bitten."

Sometimes the biter gets bitten and sometimes also the greedy or covetous spoil a good thing for both themselves and others. This is a circumstance brought to mind by recent talk of "piracy" in textiles. It appears from recent reports emanating from the goods market that the manufacturer who copies a style fabric upon which a reputable producer has spent time and

money may himself come to grief through the practice. The situation portrayed is that of a mill producing a line which it had special facilities to produce, only to have it imitated by another which could not give the same quality, the result being a loss to both; except that the originator may ultimately come into what is rightfully his business.

Washington advices carry the message that the Department of Commerce is giving attention to the possibilities of real opportunities for textiles in the foreign field. In this connection, it is interesting that one official of the Department has left to become a foreign representative of one concern in the cotton business. It is pertinent to this case to emphasize the fact that there is a law under which manufacturers may combine extensively for export business and those who may be interested in the President's advice to cultivate foreign fields might do well to look into the possibilities of direct co-operative activities, in the opinion of some.

Discussion of the closing of a large number of mills under control of the American Woolen Company has developed some interesting comment. The point has been made that the large group may lose something from not being able to keep track of every detail of manufacture, as in the case of the small unit. The need of this to establish the manufacturing margin is obvious. Yet the large unit which can take the drastic measures adopted by the American Woolen Company affords one broad benefit to the industry as a whole. To the extent that it reduces the numbers of plants in the industry and thereby curtails general overproduction, such an organization relieves the pressure of unhealthy competition. This is something difficult to achieve among small units individually struggling for a share of the textile demand.

What the Southern Mills are Doing

THE NEW UNIT of the Pepperell Mfg. Company, Opelika, Ala., has been completed and new equipment installed at an expenditure of $300,000. The new plant will begin operation at once.

Robert & Co., Inc., Atlanta, Ga., has the contract for a building for Strowd-Holcombe Cotton Mill at Birmingham, Ala. The building will be of brick with cast iron columns. Steam heating system, electric wiring and sprinkler system will be installed. They also state that 30 dwellings will be constructed.

The Alabama Textile Products Corp. recently opened a plant in Andalusia, Ala.

It is reported that work on the Montevallo (Ala.) Cotton Mill plant is progressing rapidly, and that 6,000 spindles will soon be installed. Work on a mill village, which will consist of 30 houses, will also be started soon.

Brewton Silk Mills Corp., Brewton, Ala., operated by Rieback & Mandell, Inc., have started operation. This plant has 80 looms and manufactures broad silks. More than 100 workers will be employed when full capacity is reached. E. R. Chambliss was contractor.

Fulton Bag & Cotton Mills, Atlanta, Ga., are planning to concentrate their bag production at six of their mills, closing out the one at Brooklyn. However, they will continue the office there for purchasing and sales divisions in that territory.

New owners of the Sumter Rayon Mills in Americus, Ga., recently held their first meeting and decided to re-open the mills as soon as possible at full capacity. They announce that 100 people will be employed.

The Goodyear Tire & Rubber Co., Akron, Ohio, recently placed its new cotton mill, at Rockmart, Ga., in service for operations. The date of formal opening was December 12th. The middle of January is the time scheduled for capacity production of the 50,000 spindles installed.

Walter Candler of the Lullwater Mfg. Co., Thomson, Ga., is planning to enlarge the capacity of the plant. A machinery representative has made a survey of the floor for replacing machinery.

W. H. Hightower states that $400,000 will be spent remodeling the Griffin (Ga.) Mfg. Company, which was recently acquired by the Hightower interests of Thomaston. The mill is to be closed at once while worn-out machinery is replaced and the mill village is cleaned and painted up. The mill will be in good condition to start operations in four or five months. The executive offices will be at Thomaston, Ga. F. B. Watson will be superintendent.

Strathcona Rayon Corp., Calhoun, Ga., has been formed by textile men of Calhoun, the mill to manufacture various fabrics from rayon. Engineers have been engaged and plans are now under way. A. T. S. Meldrum and C. W. Smith are interested.

A new plant of 8,000-spindle capacity and operating 50 Jacquard looms for the manufacture of bedspreads, tapestries, damask, upholstering, etc., is now under way at Forest City, N. C. There will be 100 workers employed. It is stated that $75,000 of the capital stock has already been subscribed; Belk Co., of Charlotte, N. C., is the principal stockholder.

Messrs. Frank and Robert Goldberg have taken over the plants of Armstrong, Dunn and Clara cotton mills, Gastonia, N. C., from the Armstrong interests. These mills will probably be improved and additions built in the spring.

The new $2,000,000 textile plant of the Rock Hill Printing and Finishing Co., Rock Hill, S. C., recently began operations.

Work has begun on the new plant of the Jass Mfg. Co., Charlotte, N. C. The plant will cost $100,000 without equipment, and will manufacture textile specialties.

Charles Mills Co., Red Springs, N. C., manufacturers of shirtings and dress goods, have added a rayon department and are installing new equipment, which includes: 3 Universal quillers, 2 Benjamin Eastwood skein winders and 1 Saco-Lowell rayon slasher.

The contract for additional mill buildings by A. M. Johnson Rayon Mills, Inc., Burlington, N. C., has been awarded to A. F. McNally, Framington, Mass.

The Marion (N. C.) Mfg. Co., are planning to put in water and sewerage systems in every home in the mill village. Improvements will cost the company about $110,000. Contract has already been signed with the city for water and contract for sewerage will be awarded soon.

Kerr Bleaching & Finishing Works, Inc., Concord, N. C., are now installing horizontal return tubular boilers, coagulating basins for filter plants, etc.

Kattermann & Mitchell Co., of Paterson, N. J., are negotiating for site for silk throwing mill in Stanley, N. C.—the throwing mill to be near the weaving plant.

Burlington Mills, Inc., Burlington, N. C., are now rounding out their two year program of machinery replacement, rearrangement, additions, and substitutions, which will involve an expenditure of $200,000. Their equipment includes 100 automatic Crompton and Knowles wide silk looms, which they hope to have running by the middle of January, as they will start up as fast as conditions will permit. A complete new rayon processing and converting department has also been added.

Edward B. Cohen recently purchased the Cotton Specialties Co., Greenville, N. C., from J. D. Williams and Joseph M. Cohen & Sons of New York for a price somewhere between $15,000 and $20,000. Additional workers will be employed to increase the output of the plant to 1,000 dozen dresses per week.

Work has been started on the 100 x 400 ft. brick addition to the Union Bleachery, Greenville, S. C., by Potter &

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SHIPPING OFFICES

LOS ANGELES, CALIF.
Chas. Provost, Mgr.

TEMPE, ARIZ.
S. J. Carter, Mgr.

Shackleford, contractors. The addition, including equipment, is to cost approximately $250,000.

Several units of Saco-Lowell one process picking machinery are being installed at the Grendel Mills and Panola Cotton Mills, Greenwood, S. C.

Additional Universal high speed winders and warpers have been installed at the Newberry (S. C.) Cotton Mills.

Ninety-Six Cotton Mill, Ninety-Six, S. C., recently purchased 270 Draper automatic looms. A new warehouse, and modern brick church, for the Methodist congregation of the village, are being built by the mill.

Springstein Mills, Chester, S. C., have begun full time operation again and are planning to install 350 automatic looms for the manufacture of print cloths and narrow sheetings.

The Spartan Mill No. 2, Spartanburg, S. C., will increase capacity 20 per cent about the first of the year. They will replace 25,000 of their old style spindles with a long draft type. It will take about four to six weeks to complete the installation, as the officials do not want to decrease production during installation. This plant manufactures print cloth.

Beaumont Mfg. Co., Spartanburg, S. C., is expected to add a dyeing department to their plant. The work is scheduled to begin about the first of the year.

According to C. M. Lindsay, secretary of the Fairforest Finishing Co., Spartanburg, S. C., which is now under construction, the plant will bleach, dye and finish approximately 1,500,000 yards of cloth per week.

Klotz Silk Mfg. Co., Blackstone, Va., are installing 50 Crompton & Knowles looms to double the capacity of the plant. Complete silk throwing equipment is also being added.

Contracts have been let for the addition to the plant of the Viscose Corp. Roanoke, Va., as follows: Steel work, Virginia Bridge & Iron Co., Roanoke; steel sash and mill work, Adams, Payne & Gleaves, Roanoke; reinforced steel, Concrete Steel Co., Philadelphia.

Plans are being made to rebuild the Trenton (Tenn.) Cotton Mill, which was recently destroyed by fire. The building will be of brick and steel, with 12,000 spindle capacity, which is much larger than the old one. The mill will cost approximately $250,000.

The Carolina Cotton & Woolen Mills Co., Spray, N. C., recently installed "Breton Minerol" Process equipment in their Rhode Island mill. The equipment and Breton Minerol E was supplied by Borne Scrymser Co., 17 Battery Place, New York.

The chemical cotton plant recently announced to be built by Proctor & Gamble Co., at Memphis, Tenn., is to be a plant for converting cotton linters into linter board. The linter board is for use in the acetate process of manufacturing rayon. Engineering work on the Memphis plant is in charge of Robert & Co., Inc., Atlanta, Ga.

The Amazon Cotton Mills, Thomasville, N. C., recently installed the "Breton Minerol" process in their mill. The equipment and Breton Minerol E was supplied by Borne Scrymser Co., 17 Battery Place, New York.

American Aniline Plans Early Completion of New Plant.

It was recently announced by the American Aniline and Extract Co., Inc., Philadelphia, that they would go ahead with plans on their new plant, which they hoped to have completed during the early part of 1930. The new plant is located on the main line of the Pennsylvania Railroad, New York Division, at "F" and Venago Streets, Frankford, Philadelphia. The company stated that in completing the plant as quickly as possible, they felt that they were working in accord with President Hoover's suggestion that "all planned construction work should be done immediately so as to discount any slowing up of business due to Wall Street."

It is the plan of the company, upon completion of the building, to go into the manufacture of several new products which already have been tried out in a practical way in the textile field.

New England Mill Situation

December 15th, 1929.

COTTON MILLS in New England have been running close to the wind recently, limiting their output and endeavoring to maintain the rather low values ruling on staple fine goods until such time as the larger business confidently expected for January and later materializes. Over-production and price cutting recently prevalent has given way to a more intelligent program of curtailment following up broad principles of merchandising recently laid down at conferences of manufacturers.

Discussions of market conditions, such as the one recently sponsored by the Cotton-Textile Institute, Inc., and held in New York, revealed more clearly the situation in fine goods and resulted in the resolution of many mills to run only against orders and thereby prevent stock accumulations. Many mills were already following such a policy, and the great majority seeing its wisdom have since been following it. Stock accumulations are consequently considerably less than recently, and buyers have been more confident about placing business.

A dull condition in fine goods, usual for this period of the year and accentuated by the uncertainties as to general trade that the stock market collapse engendered, has been ushered in, but in several New England centers better sales are reported for November and early December than were enjoyed during the corresponding part of last year when the re-opening of New Bedford mills following the long strike created a much greater drop in buyer confidence and inhibited forward purchases.

The general opinion in the market is that this condition will extend to the end of the year and perhaps well into January, after which a very fair spring business in fine goods is anticipated. Whether this will parallel last spring's business is a moot question, dependent on too many externals to warrant any forecast from mill men at this time. The mills note, however, a broadening market for finer fabrics as contrasted with the cut constructions and cheaper cloths that in other seasons have disturbed the market. Consequently the East is generally confident of its position for spring of 1930.

The outstanding instance of curtailment during the period has been that of the Lonsdale Co., whose mills located in the Blackstone Valley have been shut down for the month of December, except in the yarn departments where on combed yarns market comment is to the effect that they are well supplied with business for the near future. Elsewhere curtailments have varied, according to the position of each mill, the aim being for each mill to take what business its product will bring, but not to produce beyond that amount.

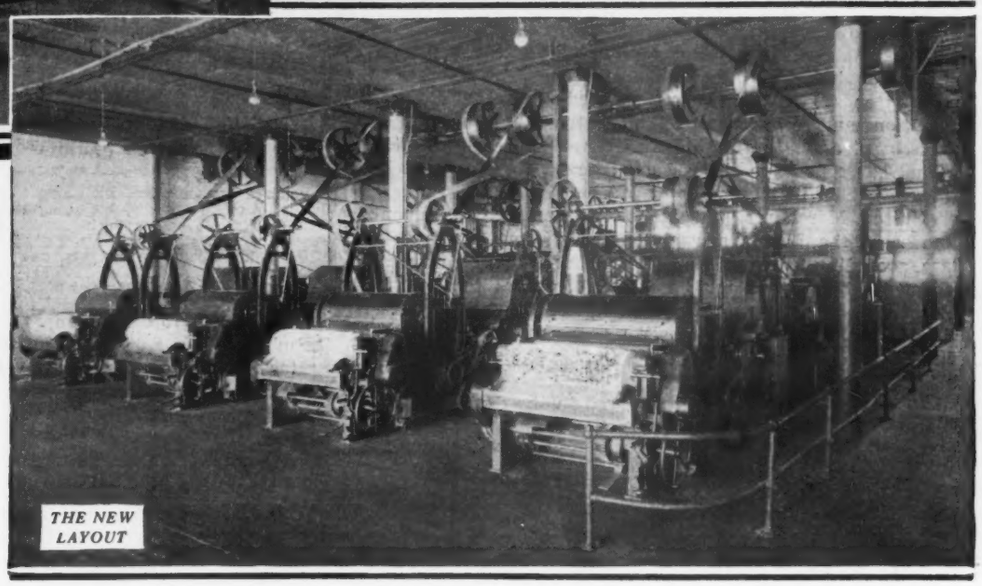
Other Rhode Island and Connecticut mills too have limited their output along these lines, and in the large Massachusetts fine goods centers a similar program has been followed. New Bedford fine goods mills are reported to be running somewhere in the neighborhood of 50 to 55 per cent of production at the present time. In Fall River many mills have curtailed their output in like measure. The cotton mills in Lowell and Lawrence, while more active during November, are cutting their output, and in the Manchester, N. H., Amoskeag plant output is on a fairly large scale for this period of the year, although the types of goods being made are widely diversified. Some of the large eastern mills handling goods of print cloth yarns have been sellers at the net prices recently, moving 38½ inch 64x60 5.35 yard as an instance at 7 cents recently.

The production figures in fine cotton goods for October have recently been issued by the Department of Commerce, 454,524 pieces being turned out in that month as against 381,760 in September and 292,763 in October, 1928, the low figure of a year ago being due of course to the strike then in effect in the East. Through November mills in the East continued a heavy production schedule in fine goods, according to estimates, although exact figures have not been com-

DISCARDED

4 MACHINES REPLACE 28

8000 FEET SAVED


THE NEW LAYOUT

SACO - LOWELL ONE - PROCESS PICKING AGAIN PRODUCES "BETTER LAPS AT LOWER COST"

A prominent South Carolina print cloth mill recently installed four Saco-Lowell One Process Picking units and saved 8000 square feet of floor space. The upper picture shows a portion of the larger one of their two old picker rooms, containing 7 discarded Finishers, 7 discarded Intermediates, and 5 discarded Breakers. Their smaller picker room, shown above with four new Saco-Lowell One Process Pickers, previously contained 3 Breakers, 3 Intermediates, and 3 Finishers,—all of which have been discarded. Continual operation of both rooms was necessary to keep the mill supplied with laps.

In their new layout the small room easily houses four new Saco-Lowell One Process Pickers, which keep the mill supplied with laps of greatly increased quality. A direct saving of cost is made due to the fact that two men now do the work formerly done by nine! You have an opportunity to apply this modernized processing in your mill. We would welcome an opportunity to present specific facts as to the savings that can be made.

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 Milk Street, BOSTON, MASS.

CHARLOTTE, N. C. SPARTANBURG, S. C. ATLANTA, GA.

piled. Two or three weeks of dullness in the trade sufficed to convince them, however, that such a program could not be profitably followed. Liquidation of some stocks and pre-inventory selling accounted for depreciation of prices, but a better stock condition, and curtailment is believed to very nearly take care of the temporary slackening of demand.

One of the signs of recovery is noted in the reports of the Berkshire Fine Cotton Spinning Associates, representing a number of mills in New England, concerning sales for early December, which, according to their experience, were the largest in many weeks. While less bullishly inclined, other eastern mills have cited a moderate improvement in demand for staple cottons, limited supplies of lawns, voiles, and similar cloths, although combed broadcloths continue in an unsatisfactory and easy condition, and a moderate business going on in rayon and cotton fancies, rayon taffetas and voiles and crepes, and some other goods. Where competition on silk mills in all rayon goods enters, stock accumulations and second hand selling restricts business and depresses prices. Some of the Fall River and certain Rhode Island concerns have enjoyed a moderate curtain goods business, both in plain goods and fancies.

United Merchants and Manufacturers, Inc., commonly known as the Loring merger, has made some progress of late, according to reports in the trade, and opening of establishments in various middle western centers to facilitate merchandising of the products of its mills has been under consideration. The company's plans are reported to be much more comprehensive than they were at the outset, although no definite announcements have been made.

Considerable interest has centered in the decision of the Bourne mill, Tiverton, directors not to liquidate until they are satisfied that profits cannot be made. They had been empowered by the stockholders to sell in whole or in part, but hope to re-open the plant when market conditions warrant and sales at a profit can be made. The mill has been closed for a month due to strike. Net quick assets of the mill are placed at $300,000.

The National Fabric & Finishing Co., Inc., has reported a net loss after charges of $348,587 for the year ending September 30, against a net loss the previous year of $283,903. Net sales increased to $7,986,922 from $7,228,985 the previous year. Bank indebtedness was reduced about one half. For the coming year the company expects to trim expenses by $140,000 to $150,000 and hopes to clear a profit of $200,000 benefiting from the experiences of the past four years. Officials have declared that the coming year is a crucial one and that liquidation might be recommended should profits fail to appear in 1930.

Movement of raw cotton into New England has speeded up of late, November receipts averaging 4,781 bales daily and showing a 40 per cent gain from October and 22 per cent over November, 1928. Daily average receipts were 3,286 in October and 1,730 in September. Combined November receipts in six centers were 143,433 bales. November receipts were: New Bedford, 49,948; Fall River, 37,034; Lowell, 11,216; Manchester, 13,635; Lawrence, 660; Boston, 18,159 foreign and 12,782 domestic. The first four months of the new cotton season have brought 336,078 bales into New England, 243,434 more than in the corresponding period of last year.

New DuPont Color.

E. I. Du Pont De Nemours & Company, Inc., dyestuffs sales department, Wilmington, Delaware, have issued a leaflet describing Sulfogene Direct Blue BRS Concentrated, which is especially recommended for large scale production on cotton raw stock, yarn and piece goods for upholstery materials, overall material, ducks, drillings, etc., which require ability for hard wear. It is pointed out that this concentrated product possesses the same fastness properties as the older brand Sulfogene Direct Blue BRS. The company points out that it is adaptable for use on all types of machines, especially jig dyeing, since being a direct dyeing color, the tendency to oxidize unevenly along the selvages is minimized.

Cotton Comment by H. & B. Beer

New Orleans, December 14th, 1929.

THE COTTON MARKET, although the indicated American crop is somewhat smaller than predicted last month, is sharply lower than one month ago, due to a disappointing foreign demand, as reflected by the smaller exports and spinners takings compared to this time last season, and because of less favorable domestic textile conditions, curtailment by American mills, and unfavorable Manchester trade advices. But the outlook is hopeful, owing to the possibility of an improved foreign demand in the future, and because of the contemplated formation of a $30,000,000 cotton marketing bureau, to be financed through the Federal Farm Board.

BRITISH BOARD OF TRADE REPORT FOR NOVEMBER.

	This Year	Last Year
Exports of yarn, pounds	12,000,000	15,000,000
Exports of cloth, yards	284,000,000	331,000,000

CENSUS REPORT

United States— Bales—	This Season	Last Season
November, consumption, including linters	607,558	680,526
Consumption, 4 months, including linters	2,600,457	2,535,283
Mill stocks, November 30th	1,671,829	1,566,542
Stocks in pub. stg. and comp. Nov. 30th	5,841,950	5,224,418
Mill stocks, stocks in pub. stg. and comp. Nov. 30th	7,513,779	6,790,960
Active Spindles during November	29,649,394	30,595,840

Last season, foreign spinners consumed of American cotton, including linters, 8,656,000 bales, and exports from the United States that season were 8,280,000 bales, the larger consumption than imports being made possible by making inroads to the extent of about 376,000 bales on their reserves, which reduced the foreign supply of American, visible and invisible, to 2,383,000 at the close of last July against 2,765,000 year before last and 3,640,000 in 1927.

The large consumption of American was accomplished, notwithstanding foreign mills having consumed more of Indian cotton last season than during season before last—5,709,000 bales of 400 pounds gross weight against 4,788,000. The carry-over of Indian cotton last July was 3,267,000 bales of 400 pounds gross weight against 3,218,000 year before last. At present the trade is anxiously awaiting the first official estimate as to this year's probable crop in India. Last year's production in India was 4,718,000 bales of 500 pounds gross weight.

GOVERNMENT COMPARATIVES.

United States—	This Season	Last Season
Acreage in cultivation July 1st, acres	47,569,000	46,695,000
Acreage left for harvest Dec. 1st	45,981,000	45,326,000
Acreage picked (revised)	(?)	45,341,000
Indicated crop December 1st, bales of 500 pounds gross weight	14,919,000	14,478,000 final
Indicated yield per acre December 1st, lbs.	115.3	152.9 final
Ginned to December 1st	12,857,971	12,560,154

SPINNERS TAKINGS.

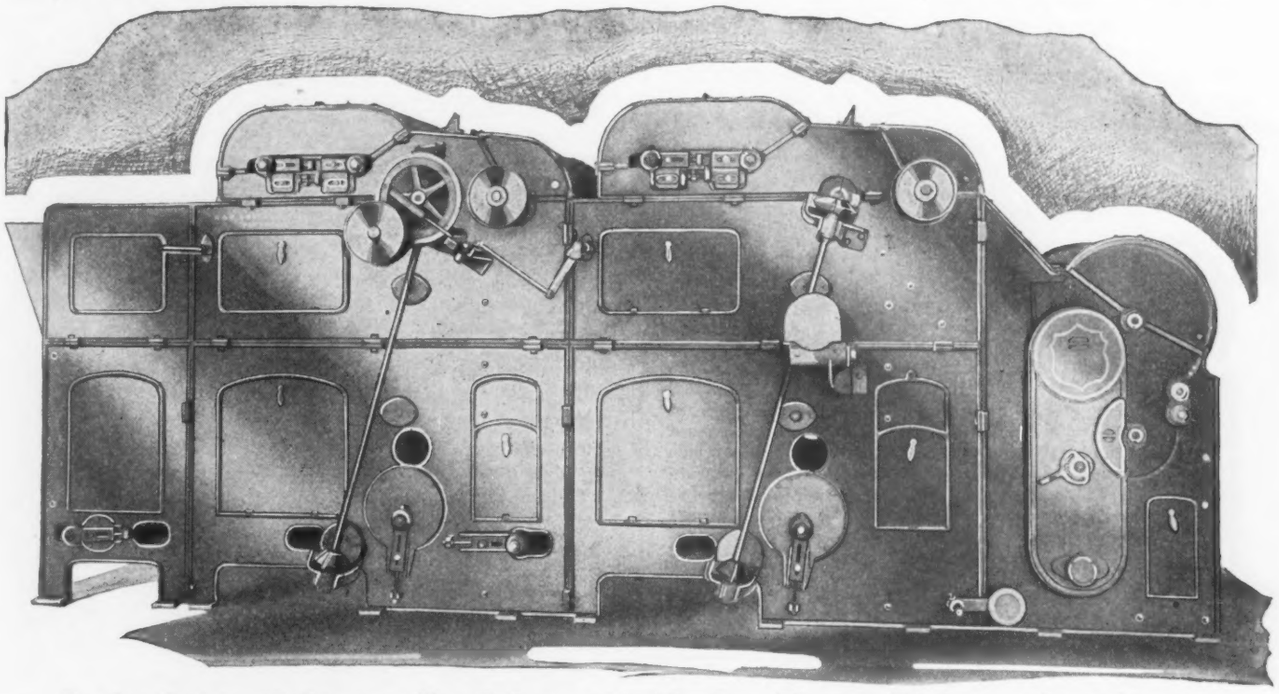
To Dec. 13th—American Cotton	This Season	Last Season
North and Canada	914,000	858,000
South	2,710,000	2,621,000
Foreign Spinners	2,870,000	3,285,000
World	6,494,000	6,764,000

Exports from the United States since August 1st, to December 13th, were only 3,714,402 bales against 4,095,425 for the same period last season. As previously noted, the foreign cary-over of American att he close of last July was reduced to a comparatively low level, and it is difficult to account for the disappointing small exports from the United States thus far this season, except that foreign spinners were probably waiting for just such an opportunity, to buy at a low price. If this should be the case, the export movement may pick up, perhaps smartly, after opening of the new year.

This is just what the market needs, a resumption of a free export movement to stimulate trading and probably bring about a higher level of prices. Money is in more ample supply and at lower rates than for some time past, the price is comparatively low, Middling in New Orleans today 16.98 against 19.30 this day last year, the world's visible

NEW H & B TANDEM AUTOMATIC HOPPER FEEDER

Efficient Performance for the First Process



In the design of this new No. 5 Automatic Tandem Hopper Feeder we have incorporated outstanding features never before applied to Preparatory Textile Machinery.

Combing Stripping Motion subjects the cotton to a gentle, but thorough combing process, which preserves the staple and semi-parallels the fibre.

Variable Speed Elevating Lattice insures at all times accurate feed regulation when used in combination with Lapper Sections.

Large Bin Area for dealing with lofty, well-opened cotton, making possible regulation by volume instead of by weight as in other types of Feeders.

Adjustment of Evener Stripping Lattice so designed that it can be quickly moved forward to or back from the Spiked Elevating Lattice to accurately regulate the amount of cotton passing through the machine.

Apron Bearings are of the self-aligning type, easily adjustable to maintain correct alignment with the shafts.

Division Plates give a Reserve Bin area for maintaining accurate feed levels.

Continuous Gridded Cleaning Surface from Doffer Beater to Cage Section.

Perforated Sheet Steel Casings under Spiked Elevating Aprons for removing sand and light leaf.

Special Frame Sides are available to suit various types of Automatic Feed, including both Overhead and Low Horizontal Aprons.

Change Gears are provided for easily increasing or decreasing production according to requirements.

Full Automatic Controls are furnished for all our standard types of Opening and Picking Machinery when used in combination with this new No. 5 Hopper Feeder

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

Southern Office: 814-816 ATLANTA TRUST CO. BLDG., ATLANTA, GA.

supply is not burdensome, and Europe and the Orient seem to be in need of much of the American raw product.

Until recently the trade had been educated in the belief that the acreage in cultivation in the United States on July 1st, was 48,457,000 acres, which apparently led many of the trade to believe that the crop may have been underestimated, but Washington, in its annual cotton crop estimate, as of December 1st, released December 9th, placed the acreage in cultivation July 1st at 47,569,000 acres, or 888,000 acres smaller than reported last July. On August 8th, the government forecast was for a crop of 15,543,000 bales of 500 pounds gross weight, but its final estimate, released December 9th, was for a yield of only 14,919,000 bales of 500 pounds gross weight.

Trade in England is not good, but can hardly get much worse; it is good in France, has been good in Japan, is reported improving in Germany, and is reported in rather good shape in southern Europe.

Compared with last year, the world's visible supply of American cotton yesterday was 6,349,828 bales against 6,220,094, of other kinds 1,937,000 against 1,750,000, and of all kinds 8,286,828 against 7,970,094.

The How and Why of Bill Making

AT first glance this article may appear out of place in a manufacturing journal. We may seem to have departed into the realm of civic government. At the same time, textile manufacturers individually and as a whole are—or should be—keenly interested in governmental affairs. This simple explanation of how bills are handled in Congress may serve to clarify some of the incidental confusion which, unfortunately, exists in the mind of the average lay citizen, as to how they do things in Washington. It is presented with that thought in mind.—The Editor.

TRACING legislative log rolling from the Congressman's desk to the White House pen is a mystery which but few executives in the textile industry know much about, and this article is therefore intended to furnish a concise picture of the business of "legislating", which is a highly specialized business in itself comprising as it does a vast business machine which turns out bills and more bills.

How does a bill originate in Congress? Well, any member of Congress has the right to introduce any kind of a bill he wants to, but if it is without merit it will not travel very far along the route, and it will never feel the pressure of the White House pen. If a bill has merit it generally gets a show, but in its perigrinations it may get hung up anywhere *en route* and frequently does.

A bill may originate in the fertile brain of a Congressman who has studied business conditions and thinks some remedial legislation is called for, but most frequently it is started by a trade association or group of business men who are seeking some remedy for what they conceive to be an intolerable situation. It may be started by some keen business executive who pours his tale into the willing ear of a listening Congressman. It may be started by some professor or keen student of business, an economist, a banker, or whatnot.

A bill first gets official recognition when it is dropped by the secretary of some Senator or Congressman into the official reception basket which is to be found on the Speaker's desk of the House or on that of the President of the Senate, going from there to the Bill Clerk, where it is given a serial number such as H. R. 111 or S. 11, after it has first been scanned most carefully to see that it is according to recognized parliamentary procedure, as prescribed in the rules and regulations of both houses of Congress.

After it has been given a reference number by the Bill Clerk and is thoroughly indexed, it goes over to the Government Printing Office, where it is printed in the number of copies desired for the purpose. The bills are all thoroughly indexed alphabetically and by number for quick reference in case any one should call up about one of them—and a host of calls come in every hour of the day about this bill and that one, and one man keeps busy answering questions which keep pouring in from all sides, and it is his particular job to know all about each bill and to keep tab on where it is at all times, its status, etc.

After the bill is printed and comes back to the Bill Clerk's office, it is then referred to the Committee where the Senate or House has directed it be sent at the time the bill was read. Each bill is briefed and appears in the Congressional Record, which is the daybook or blotter of procedure for the routine which Congress follows from day to day.

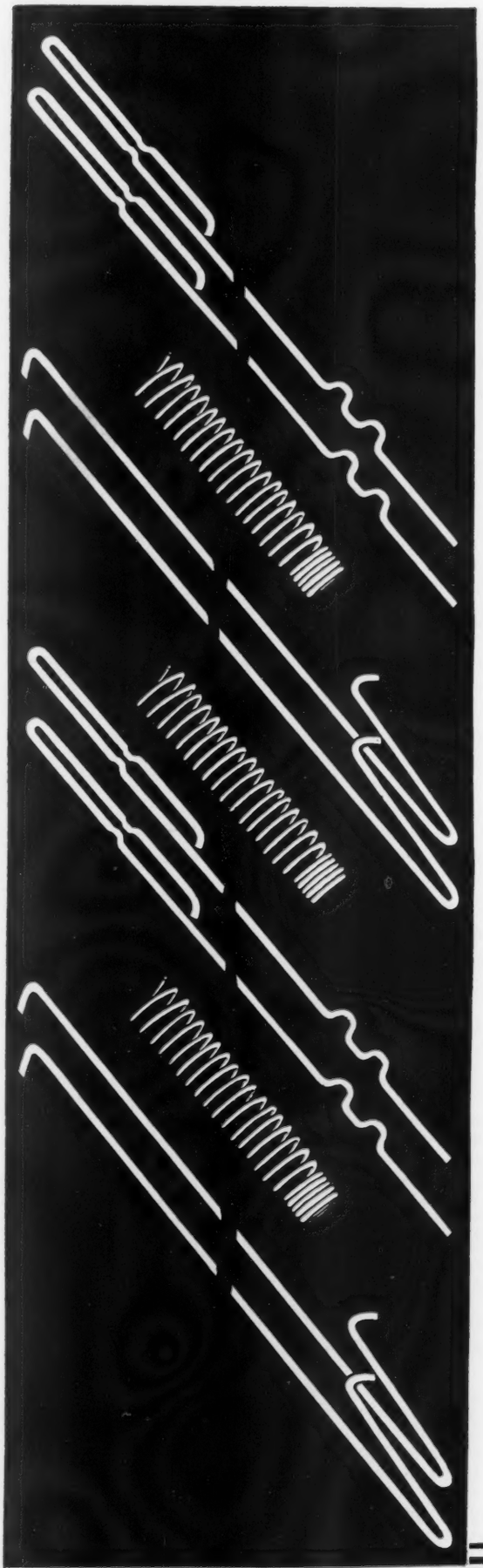
The Committee to whom the bill is referred then proceeds to consider it in due course, depending upon its importance and the pressure put behind it, and if it has enough merit, it is reported out of the committee room to the floor of the House or Senate, with favorable or unfavorable recommendation, or with suggested amendments. Sometimes the committee report of its hearings is printed, at other times the bill is simply referred back with a formal stamp or tape of approval or disapproval attached.

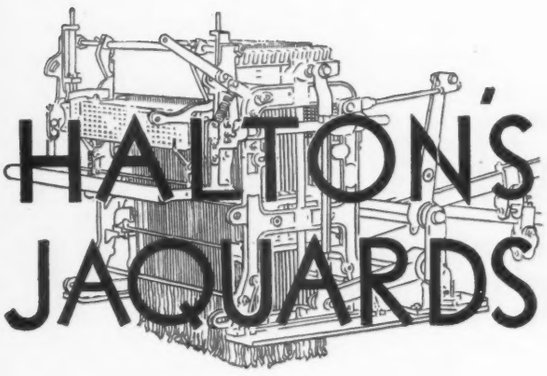
If there are 21 members on a committee, 11 members can prevent action. If the bill is voted out, it is referred to the Calendar of the House; where, however, it may remain without action for an indefinite period. If it is a measure with tremendous support behind it, a special rule can be given which sets a certain hour for its consideration. It is open to amendments, however, and votes in the Committee of the Whole are not record votes.

The bill as referred from the Committee, with or without amendments, is then submitted to the House and put upon the calendar for action at the proper time in rotation. The bill is docketed either on the private calendar, the consent calendar, the union calendar or the House calendar. In the Senate there is but one calendar. Even after a bill gets on the calendar that is no sign that it will soon pass, for if a Congressman or Senator objects to its consideration, it is immediately tabled and may have to wait another week or month or forever, to be called up on the floor for consideration.

As soon as the House is ready to receive the bill, the chairman of the committee then recommends that the Committee of the Whole House take it under advisement. The bill is then taken up and there is general debate, a certain amount of time being allotted to its debate. A bill like Muscle Shoals might have eight hours or more, other less important bills being limited to as low as 3-minute debates.

When a bill is amended it is read five minutes for





HALTON'S JAQUARDS

Needles and hooks and springs—do the job! They're important. That's why Halton has needles and hooks and springs made especially for them—out of strong and flexible high carbon wire —tested and retested. » » » » »

All materials and parts are made to do the job. That's why Halton's jaquards produce—that's why they're in the best mills. You'll be interested in our new catalogue. Write for it. » » » » »

Thomas Halton's Sons,
"C" and Clearfield, Philadelphia
H. A. Forbes, Paterson, N. J.
Fred H. White, Charlotte, N. C.

each amendment, and is read in sections. Some times it may take two or three days to get through a single bill, on account of its length. Members have only five minutes to discuss it, and members generally come to the Democratic wing or the Republican side (to whichever party they belong) to get the time allowed to keep posted.

If the House passes the bill it is then sent over to the Senate, where the same procedure takes place. The act of transmitting the bill is called in Capitol Hill parlance "messaged-over". The Clerk of the House or his assistant walks over to the Senate chamber, armed with the bill or bills tucked under his arm, and the Doorkeeper of the Senate invites him in and announces that he has a bill for the Senate—this is known as "messaging the bill."

A House bill which has been numbered, say H. R. 1111, never loses its number in the Senate, but the bill is again printed and marked, "In the Senate of the United States—H. R. 1111".

If the Senate does not agree with the House on this bill and amends it, the bill is then messaged back to the House, with the amendments tagged on, and if the House agrees it may be passed. If it does not agree to the amendments, conferees are then appointed, so many by the Speaker of the House and so many by the President of the Senate, and they go into conference and either agree on suitable amendments acceptable to both houses, or report back a dead lock, and then both the Senate and House have to iron out the situation. If the House and Senate both agree to the conference report the bill is then passed without further difficulty. The Welch bill, for instance, was hammered back and forth, and suffered 37 amendments before it was finally passed.

If the bill passes both Houses it is then signed by the Clerk of the Senate from where it goes to the Speaker of the House who signs it, and from thence it goes to the President through the Committee on Enrolled Bills. The President must either approve or disapprove it. If he vetoes it he usually sends a message back to Congress with it, stating his reasons. If he fails to sign it, the bill becomes a law anyhow. But if Congress has adjourned and he fails to sign it, the bill is considered vetoed, this being the pocket veto about which there has been so much discussion lately. The ten-day period for approval or disapproval runs from the day the President receives the bill.

Sometimes similar bills originate in the House and Senate at the same time. This helps to expedite action, for if the Senate should pass its bill before the House gets to the same bill, and the bill is identical, the House will then table its bill and pass the Senate bill in lieu of the House bill, as a short cut and by consent vote.

Legislation takes the form of either a bill or a resolution. A bill must pass both houses and be signed by the President, but a mere resolution need only pass either house, while a House Joint or Senate Joint, or Concurrent Resolution must pass both houses.

"The whole system is built up on the check and balance plan," says Congressman Clyde Kelly, who has probably introduced as many bills affecting business interests as any man in Congress. "Its main purpose is to prevent hasty legislation. In some particulars it has become a handicap to legislation of all kinds. One thing is certain, however, when a bill runs the gauntlet provided for in the rules of Congress, it is a measure having tremendous popular support."

Killing a Bill.

Every bill of any importance is referred to a Committee, of which there are 20 in the Senate and 45 in the House. A bill is either private or public—private if it relates to individuals and public if it is general in its nature.

A lot of bills, while referred to Committee, never come out, many of them being killed in Committee hearings and being definitely pigeon-holed in the cobwebbed cubby holes of numerous desks in the Capitol. The public at large is a powerful curb on any and all legislation and business interests generally find many ways of killing a bill that they think is going to affect legitimate business injuriously.

The first chance to kill odious or unwise legislation is in the committee rooms at the hearings and by the well known lobbyist who hobnobs with Senators and Congressman and plants seeds of distrust into their ears. The next chance to kill a bill is on the floor of the House or Senate while still on the calendar, or if it comes up by consent vote through a party leader or some notable orator of the day, or through a filibuster, and then if it passes the House in spite of all obstacles and hindrances thrown in its way, it may be killed in similar manner in the Senate, or vice versa. So also by tagging on numerous amendments the purport of the bill may be defeated. And finally, if all these means fail, there is still the President's veto power.

So that under this plan of checks and balances, there is very little chance of getting anything through the Congressional mill which is not wanted by the people of the United States in Congress assembled, and putting a bill through Congress against the face of public opinion is usually reflected in the next elections.

New Square D Meter Service Breaker.

Square D Company, Detroit, Michigan, have announced a new product, the Square D meter service breaker. This has been designed with a view of eliminating the plug fuse, and the problems of sealed main fuses, accessible fuses, interlocking doors, etc. It is pointed out the front manual operation enables the service breaker to be banked more closely and recessed, and that a quick make-and-break eliminates contact burning and variable action. The front operating handel is fully insulated, and can be locked or sealed in the "off" position. The company points out that it has a longer time element than fuses, and withstands temporary overloads, though opening the line before any damage, and is fast enough to protect rubber covered wire under all over-load conditions.

Toledo Announces New Line.

A complete new line of scales for retail and domestic uses was recently announced by the Toledo Scale Company, Toledo, Ohio. They stated that in addition to improved mechanical devices such as self-aligning frictionless bearings, new poises, a locking device, check link construction and interchangeable commodity receivers or weighing pans, the new scales are more sanitary and more attractive looking, and that the line covers a wide range of weighing capacities and fractional units of weight.

Power-Load vs. "Oil Spots"

EFFECTIVE lubrication is the one way to reduce the power load. Thousands of fast moving parts must be adequately lubricated—the right lubricant in just the right amount. No more—*and no less.* Effective lubrication economizes power—yet with equal effectiveness assures the mill operator against oil spots on the finished product.

The Texas Company with its long experience as a manufacturer of a lubricant for every purpose has been remarkably successful in helping textile executives to a better understanding of lubrication. Texaco Lubrication Engineers are specialists. Their services, along with those of specialists in other lines, are recognized as essential in maintaining the textile mill on a high plane of modern efficiency. Their work in the interest of better lubrication has saved hundreds of thousands of dollars.

Write The Texas Company about your lubricating problems. One of our engineers will gladly go over your plant and study your conditions. His recommendations should prove valuable.

THE TEXAS COMPANY
17 Battery Place, New York City
Offices in Principal Cities

TEXACO
Lubricants

Material Handling in Textile Mills.

(*Continued from page* 256.)

Moreover, its range of usefulness within the plant being practically unlimited, it is easily kept busy throughout the day. The number of ways in which an electric truck can make itself useful is astonishing.

Skids and Electric Lift-Trucks.

The combination of skids and electric trucks has proved to be a particularly happy one, whose effect has been felt in less time for loading and unloading, quicker delivery to production machines, reduced inventories, greater ease of inspection and stock-keeping, and reduced storage space by tiering vertically with the help of a high-lift electric truck. The lowly and inexpensive skid is an increasingly important factor in materials handling, and the electric truck is its equally valuable partner.

The electric truck finds favor with the plant employees. It takes drudgery out of their daily life, and substitutes incentive and pride of accomplishment.

Hand-Lift Trucks.

The lift truck system is a lifting and carrying unit comprising any number of load platforms and one or more master hand-lift trucks.

It solves a big problem, that of lifting and hauling economically, loads of varying weights and types of material, which must be moved frequently and quickly to various locations or held as "live" storage.

The lift truck system combines the lifting and carrying capacity of elaborate overhead equipment with the flexibility of an individual carrier. It provides the capacity of a fleet of separate trucks at the comparatively small cost of one master truck and a fleet of inexpensive load platforms of any design or style required. It provides one man with the lifting strength of from three to 88 men, and thereby effects substantial savings in the amount of labor required for mill trucking. It simplifies every interior hauling job, cuts the time required for each individual task, eliminates re-handling, speeds production and reduces costs. It saves the space required for the storage of unused individual trucks. The load platforms, stacked, require no more room for 12 than for one. And under any stack the master lift truck fits snugly, taking up no additional, and valuable floor space.

Tramrail.

Every installation of material handling machinery, whether it be trucks, belt conveyors, roller conveyors, or whatnot, is successful and profitable only because it eliminates the re-handling of material or that it permits the handling of larger quantities of material with the same amount of physical effort and the same, or lower, cost.

Overhead conveying machinery that is sufficiently flexible in design to permit access to all material handling requirements in congested plants undoubtedly offers a great opportunity to successfully apply the fundamental principles of material handling.

In all manufacturing industries the principle of increasing the size of the unit of production has been given a great deal of attention and has been broadly adopted in the past few years. The size of wire bundles handled in a wire mill has been increased from 150 pounds to 450 pounds, and within the next few years there will be mills in operation that will produce and manufacture wire in bundles of 600 pounds and possibly larger. In the textile mill, the size of the warp beam has gone through a constant process of increase until it is today common to find textile mills handling warp beams that weigh 1,000 pounds, and in some instances as much as a ton.

Portable Elevators.

Ours is a power operated age. We are not content, nor can we afford to do by manual labor what can better be done by power. Not only does labor gravitate to the easier jobs, but the intensive competition of modern business makes it suicidal to cling to hand methods when machinery has proven its economy.

This is true in every department of industry, and especially so in the handling of materials where the staggering total needlessly expended is only just being realized. The portable elevator is one of the tools available to help cut down this unnecessary waste and electric lifters are being used in constantly increasing numbers for all kinds of heavy lifting to eliminate hand labor, to speed up operations and to make full use of existing storage facilities.

The electric lifter is first of all a portable elevator for handling heavy materials of all kinds in storage. Readily moved on wheels to any point and operated by a sturdy electric motor getting its current from the house circuit, it will keep a gang of truckers busy and pile from floor to ceiling with the utmost dispatch.

But many uses other than ordinary stacking are constantly being found for this all-round machine. It is used as an inexpensive elevator from one floor level to another for overhead cleaning. It serves balconies, operates as a sidewalk or basement lift, loads wagons, motor trucks and freight cars. It takes the place of a ramp or runway, it elevates and dumps batches into mixing vats, serve racks or for other storage.

Storage Racks.

Steel storage racks are especially designed for the economical storing of warp and loom beams and roll cloth.

While economy of space is usually the factor of most importance, these racks facilitate storing in "lot order", promote cleanliness, reduce fire hazard and eliminate damage to beams, this latter being of special importance in textile mills.

A system of racks is very flexible in its installation. It is simply a series of steel runways supported by riveted panels or frames as high as the ceiling will permit. Each tier is independent of every other tier, no weight resting on any beam and every beam readily accessible.

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NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

E. Chappell, for more than thirty years southern representative of H. & B. American Machine Co., of Pawtucket, R. I., with headquarters in Atlanta, Ga., has announced his retirement, effective January 1st. Mr. Chappell became associated with H. & B. in 1894, and shortly thereafter established the southern headquarters in Atlanta, where he has since served the company and the industry continuously. Mr. Chappell's unusually extended and continuous service parallels closely the development of the textile industry in the South, with which he has thus been intimately associated for more than a third of a century.

In retiring from active business, "Chap" can look back upon hundreds of contacts, many with pioneers in cotton manufacturing; and scores of manufacturing enterprises in whose development he rendered invaluable assistance.

J. Carlisle Martin has been transferred from the Pawtucket headquarters to the Atlanta office, following Mr. Chappell's resignation, and Arthur Drabble is now in the southern organization, with Thomas Aspden and Fred Dickinson.

Walter B. Dillard, Jr., has resigned as assistant superintendent of the Columbus Manufacturing Co., Columbus, Ga., and has been made superintendent of the Peerless Cotton Mills, Thomaston, Ga. Henry Robinson has been promoted from overseer of weaving to assistant superintendent at the Columbus Manufacturing Co.

Hal Riviere, it is reported, has become superintendent of the Alabama Mills Company plant at Wetumpka, Ala.

W. R. Tattersall, formerly general superintendent of the Chadwick-Hoskins Mills, at Charlotte, N. C., has become general manager of the Langley Mills at Langley, Bath and Clearwater, S. C.

S. R. Power, formerly superintendent of the Chadwick-Hoskins Co., Mill No. 4 at Pineville, N. C., is now superintendent of the Langley Mills at Langley, S. C.

C. N. Poore has been appointed assistant to the president at the Louisville Cotton Mills, Louisville, Ky. Mr. Poore was formerly superintendent of the mill.

Gerald H. Mahaffee has been promoted from assistant superintendent to superintendent at the Louisville (Ky.) Cotton Mills. He graduated from the North Carolina State College in 1925.

Barry V. Cornwall, a graduate of Clemson College, where he took special work in textile chemistry and dyeing, has recently accepted a position in the dyestuffs technical laboratory of the DuPont Company in Wilmington, Delaware.

G. E. Faulkenberry has accepted a position with the DuPont Company in the dyestuff division at Charlotte, N. C. He is a graduate of the Clemson College (S. C.) Textile School.

J. A. Wix, formerly superintendent of the Palmetto Mill, Laurens, S. C., is superintendent of the Aiken Mills, at Bath, S. C., and L. M. Manley, formerly overseer of carding at the Gluck Mills, Anderson, S. C., is superintendent of the Seminole Mills, Clearwater, S. C.

L. H. Miller, formerly overseer of carding at the Aragon-Baldwin Mills, Chester, S. C., is now overseer of carding at the Langley Mills, Langley, S. C. **J. B. Kirby**, formerly overseer of weaving at the National Weaving Company, Lowell, N. C., is overseer of weaving at this plant.

I. G. Dixon, formerly overseer of carding at the Chicopee Manufacturing Company, Gainesville, Ga., is now overseer of carding at the Aiken Mills, Bath, S. C., and **L. C. Finley**, formerly overseer of weaving, Spencer Corporation, Spindale, N. C., is overseer of weaving at this plant.

W. P. Bolen has accepted the position as dyer of the Louisville Cotton Mills, Louisville, Ky., to succeed W. Stelfox, who is to return to the East.

D. A. Gibson, has resigned his position as overseer weaving at Aileen Mills, Inc., Biscoe, N. C., to accept a position with the Cotton Textile Institute in the cost department. He is a graduate of Clemson College.

J. J. Chamberlain, who was erroneously reported in these columns last month as being affiliated with the DuPont Rayon Co., is, instead of being connected with that organization, with the Viscose Co., with headquarters in Charlotte, N. C.

C. S. Doggett, professor emeritus of textile chemistry of Clemson College, died at his home on the Clemson campus November 15th at the age of 71. He was head of the textile department of Clemson for a period of 22 years prior to retiring several years ago, and his death was a terrible shock to his many friends there and elsewhere. His many friends, however, were somewhat consoled by the fact that Professor Doggett was not called away until he had seen his untiring efforts at Clemson bear much fruit.

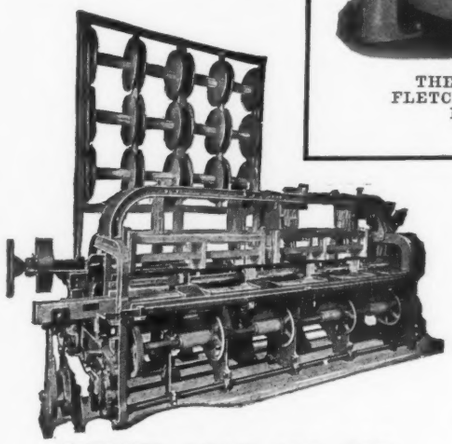
W. T. Morton, formerly overseer of spinning at the Mollohon Mfg. Co., Newberry, S. C., recently accepted a similar position with the Middleburg plant of Martel Mills, Inc., Batesburg, S. C., succeeding L. L. Dickert who resigned.

H. G. Gross has been appointed manager of the Hemphill Company's office in Chattanooga, Tenn., following the transfer of H. E. Gosling to the factory at Pawtucket, R. I. Mr. Gross has been in charge of the Carolina territory for the past five years, making his headquarters first at Burlington, N. C., and later opening a branch sales office and show room in High Point, N. C. **James McDowell**, who for the past several years has been assistant manager of the Hemphill Company's Philadelphia office, has been appointed manager of the High Point office.

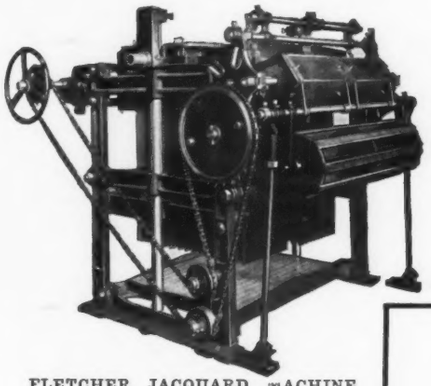
Robert Hodges, formerly associated with the paint department of E. I. Du Pont De Nemours & Company, and well known throughout the southern textile field, has been appointed Southeastern Manager for the general maintenance department of the Glidden Company of Cleveland, Ohio. He has charge of the textile industrial paint business for this company in the Carolinas, Georgia, Alabama and Tennesee. **William H. Jones**, formerly of Charlotte, N. C., is also associated with this company as sales representative, with headquarters at the Franklin Hotel, Spartanburg, S. C.

1850-1930

THE REMARKABLE FLETCHER WHIRLWIND EXTRACTOR



FLETCHER LOOM FOR THE WEAVING OF ASBESTOS BRAKE LININGS



FLETCHER JACQUARD MACHINE WITH SINGLE LIFT FOR PILE FABRICS

It is interesting to note that nearly every epochal advance in the design of textile machinery has occurred within the past eighty years . . . it is also interesting to recall that during those eighty years Fletcher was supplying to textile mills, equipment ranking second to none in workmanship and quality.

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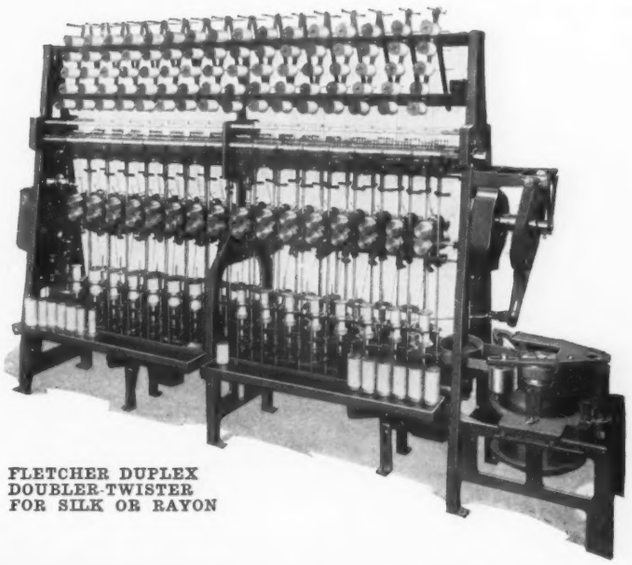

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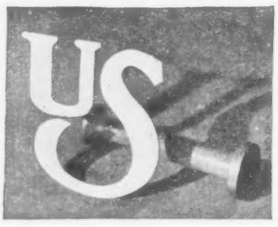

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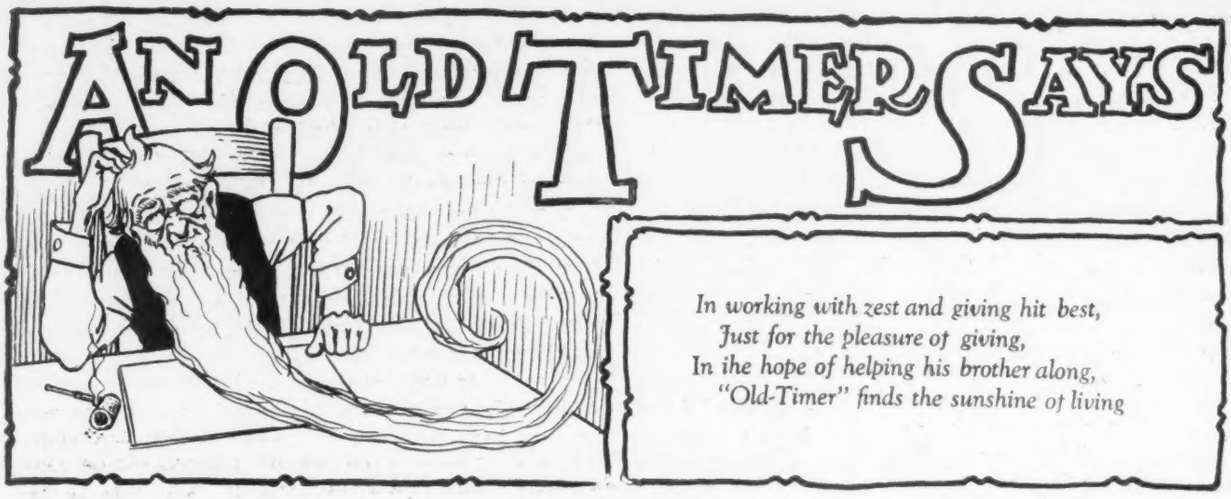
JORDAN DIVISION
GREENVILLE, S. C.
MONTICELLO, GA. DUBLIN, GA.
JOHNSON CITY, TENN.


AN OLD TIMER SAYS
In working with zest and giving hit best,
Just for the pleasure of giving,
In ihe hope of helping his brother along,
"Old-Timer" finds the sunshine of living

"It"

OLD-TIMER is not imitating Elinor Glyn, or whoever it was that bestowed the word "it" upon Clara Bow. He's really serious about this matter, and if you will read through to the finish of the article you will learn that he has evolved another idea for you to chew on. We should be grateful to have every reader write us his opinion on the idea suggested by OLD TIMER in this article. We would like to know how you feel about it, because there is a big chance that something of this kind can be put over. Write us right now, won't you?—THE EDITOR.

AS STATED BEFORE, OLD TIMER has taken a flyer at studying quite a few things in trying to solve the many and varied problems of the life of a human being. Human nature, that very elusive trait—if it may be called that—an often misunderstood part of all men, demands the study of a lifetime itself. That is, you never cease to learn something new about human nature. In its relation to business—its application or relation to the work of an overseer or superintendent—OLD TIMER has often remarked that it is one of the most complicated studies, yet the most simple.

Seemingly a contradictory statement, yet OLD TIMER believes he can, from a practical standpoint, prove that that statement is not contradictory. But, I am wandering from the main thought which I had in mind when I sat down at my desk tonight to give vent to a thought which, I am frank to admit, I am far from understanding.

That explains the rather unusual title of this article. In conversation with a friend this week he used the word "it" to answer my question, because he seemed to be as much in the dark for a proper explanation as I was.

Here's how it all started: I have a very dear friend—a young man—whom I have known since his childhood. I have been in pretty close touch with him as he grew up, as he went through high school and then through college. I have kept a close watch on him as he left college and started out on his own, and it is the young man's personality (I am not sure that is the correct word to describe what I mean) about which I wish to talk.

This young man (for the sake of brevity we will call him Sam, though that is not his real name) took a position not far from my work and in a town that I visit quite often.

Most of the traveling men who call on me also come in contact with this young man in his work. However, many of them do not know that Sam is a personal friend of mine or that I am interested in him any more than I am in many other young men I know.

What first impressed me and caused me to make an effort to fathom the mystery of this phase of the personality of Sam was in casual conversation with traveling men and others. Almost invariably when Sam's name was introduced they would say many complimentary things about him.

At first I was suspicious that they in some way knew I was interested in the young man, and I laid several traps to find out.

Having fully satisfied myself that they were not "whitewashing" Sam just because they knew of my interest in him, I went at him to find out if or why or how he had made such an impression on these men to cause them to speak so well of him. When I would see Sam I would ask: "Sam, do you know such and such a gentleman?" Sometimes his quick answer would be "Yes," and at other times he would have to think before he could remember the man, and a few I asked him about he could not recall; yet these men had spoken in the very highest terms of him, saying what fine young man he was; that he was going to make good, etc. You see, my intention was to find out if these fellows who held him in such high esteem had been associated with him long enough to form a friendship or if Sam had been able to do them some favor or by some special act had caused them to speak so well of him.

My investigation, as explained, fell flat. It just seems that everybody who comes in contact with Sam not only likes him, but likes him so well that they seem to take pleasure in speaking well of him to others.

So, last week when Fred, a very good friend of

mine, whom I have known for more than ten years, had some nice things to say about Sam, I put the question to him that I have outlined. I said: "Just why and how does he make friends everywhere he goes? What does he do to make friends?"

Fred said, "OLD TIMER, Sam has just got *'it.'* As to what *'it'* is, I am unable to explain, but he is one of the few people who are blessed that way."

"Well, Fred, that is partly a fact, but I am not satisfied, and I want to know what that *'it'* is and why more people do not have that characteristic in their make-up."

I am still trying to solve the mystery, brother, and I think you (my reader) should give it some thought too. Do you make friends easily and quickly? Can you think of a more valuable asset for an overseer, superintendent, a business man, lawyer, preacher, or a man in any vocation of life to have?

Gosh! I wish *"it"* was for sale. I would not only plank down what cash I could muster up, but would buy a few more bushels on the installment plan.

Some learned writers refer to this quality in a man as "character." In fact, I have a volume of Ralph Waldo Emerson's lying here on the desk now that I have been looking through in the hope of finding a solution to what my friend Fred terms *"it."*

> *"Time, which is life, is like a one-way street. You are not coming back, brother, and a lot of us who are traveling that one-way street are going in the wrong direction."*

Here is a chapter on "character" and Emerson seemed to be about as much at sea as the rest of us, for he says: "There are geniuses in trade, as well as in war, or the state (meaning politics) or letters; and the reason why this or that man is fortunate is not to be told. It lies in the man; that is all anybody can tell about it."

Well, that does not suit me at all, even if Ralph Waldo Emerson did say it.

Again he says: "This virtue draws the mind more when it appears in action, etc., etc. Higher natures overpower lower ones—perhaps that is the universal law."

Get that word *perhaps*, fellows. Say, I'll bet one of these new ten dollar bills that old man Emerson never had to work a set of red-headed, freckled-faced doffers or a bunch of stubborn loom fixers in his life—no wonder he says "perhaps."

Mr. Emerson talks some more: "Men exert on each other an occult power. A river of command seems to run down from their eyes into all those who behold him," etc., etc.

Yea, I remember my boss looked at me that way one time when my cost had been going up for the past three months—only it wasn't just a river, it looked like to me it was the whole darn Mississippi and Ohio rivers put together! Anyhow, the cost came down next month—*way* down!

To get back to our thought and cut out the foolishness. I only quoted Emerson to show you that even great men's words can be misinterpreted or juggled about to mean most anything.

Shakespeare said the devil could cite scripture to suit his own purpose which is all true, and I have gone into lengthy detail in an effort first to somewhat agree with what I know is in your mind.

Namely, that this wonderful and mysterious *"it"* we are talking about is a gift from God, and that no one else can acquire it.

I will admit that it is a gift from God, and I reverence it as such, but I also claim that although God may have given one man a little more than He did another, He scattered some of it among most all human beings, and the trouble is, most of us haven't the backbone to compel ourselves to cultivate the faculty—to hold our tempers when we should—to be pleasant when we have a grouch—to at least use the good manners we have been taught by our parents—to be considerate of our fellow workers, in fact, just to be *gentlemen* when it hurts. Yes, it's a gift from God; so are fixing looms, grinding cards and plumbing spindles a gift from God. Some of us can fix looms better than the other fellow can, but that does not say that another man can't learn to fix looms well enough to run a section successfully, does it?

It was a gift from God wheo Christ wrought miracles, but He in turn taught His disciples to work miracles, didn't He?

Sam has got *"it"* as Fred says. So can you acquire that wonderful asset of making friends if you will only give it serious thought and at the same time fight those confounded little mean qualities that are always popping up in you.

Of course you know, (if you are a regular reader of the page) that what OLD TIMER is interested in is giving his brother overseers and superintendents a lead so they will conduct themselves in such a way that people will say of them what my friend Fred said of Sam—they have got *"it."*

"That overseer or superintendent is just a darn nice fellow, even if he is strict with the people who work for him and, still more important, with the people he works *with*."

That person is rare—he stands above the average—who is an expert overseer or superintendent and who also can cooperate with his fellow men.

You know, fellows, that one bee cannot make honey; it takes the whole of the hive. Neither can one overseer run his department successfully without the cooperation of the other overseers—and the superintendent—Oh! my gosh! what a job he has when he can't get his men to cooperate with him, and if he is wise to holding his own job he will help that stubborn overseer, who just will not fall in line, to get another job.

I have often told, in my talks, the story of the man who owned a very large tract of land and was a very successful farmer. He had seven sons. On his death bed he asked each of the boys to go out and bring him a small twig about the size of a pencil. He bound the seven twigs together with a piece of cord; then in his weakened condition, caused from a long illness, he made an effort to break those seven twigs, which were

(*Continued on page* 366.)

9-54

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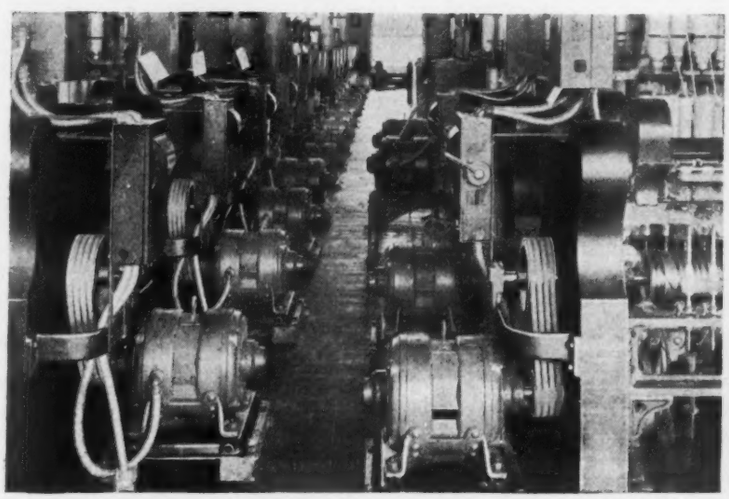

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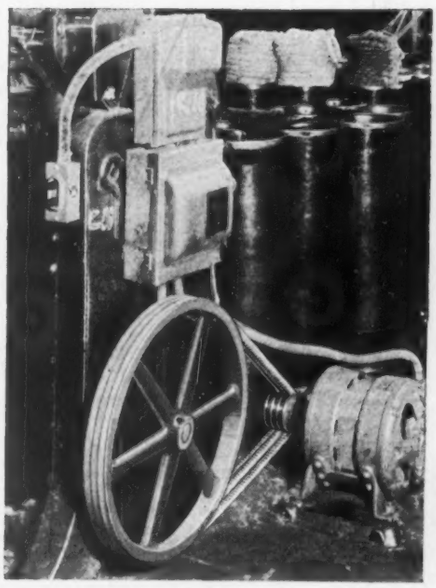

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The old Lifting principle as applied by Modern Management

The most interesting fact about Modern Management is that its logic is as old and as so as the hills.

With Archimedes, 2000 years ago, it says, today, "Give me a place to stand, and the right *levers*, and I will move the world."

With vision, based on dependable facts and figures, Modern Management makes for itself the "place to stand." And it *leans on its levers*. With sound Organization, Research, Budget Control, System, Order, it lifts with ease and precision its ever-increasing load of greater and greater accomplishment.

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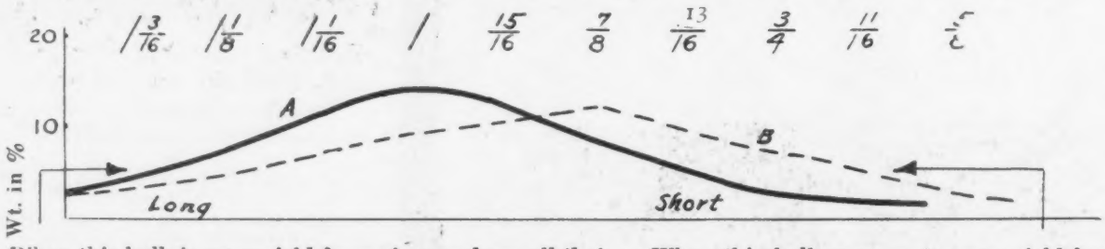

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When this bulk represents your yield-from-gin, you have just ordinary ginned cotton.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Wants More Cloth Room Discussion.

Those interested are urged to answer these questions and to submit any others of interest in connection with cloth room practice.

EDITOR COTTON:

I wonder why it is that there are not more discussions on the cloth room in the "HOW OTHER MEN MANAGE" department. I am very much interested in this phase of the mill myself, and know that a large number of your readers are also. In an effort to get some discussion started along this line, I would like to offer the following two questions, and should appreciate experiences of any men along these lines who will write them for the discussion department.

First, I would like to have the opinions of other men as to the best speed which can be used on a folder, keeping in mind the quality of the work as well as doing justice to the machine.

Also, on narrow sheetings, give the average variation in measuring cloth on a folder.

A. E. (S. C.)

Brushing and Calendering Tubing, — and "When is a Yard a Yard?"

EDITOR COTTON:

In a recent number "CONTRIBUTOR NO. DERE" submitted some questions which I would like to discuss. In one of his queries, he asked how a 16-ounce tubing could be brushed and calendered to avoid wrinkling. I know of some mills who are running pillow tubing on regular brushing machines with ten cleaning appliances. So far as I know, there is no difficulty in running tubing through a brusher. Care must be taken, of course, to have the cleaning rolls for each side hit the goods about equally so that the tension will be practically the same on either side. On the calender rolling machine there should be a spreader for each side of the goods. Enough tension must be put on the goods before going into the brusher to keep them perfectly flat. On this class of work, this requires more tension than is used on sheeting and print cloths.

During the past year or so, I know many mills which are running tubing through a shear without brushing them at all. The shear simply removes all of the selvage threads and the threads on each side of the goods. Pillow tubing is usually sent to a bleachery where most of the foreign matter in the goods is removed during the bleaching process.

Another question from this same man brings up the old argument "When is a yard a yard?" He wanted to know how to avoid "crawls" or "creeps" in 30-inch 7-ounce osnaburgs after it is baled. He said he recently saw a bale of this goods opened about three weeks after it was baled, and the folds measured only about 35½ inches, and he said he was sure they were full 36-inch folds when baled. He added that the cloth is not subjected to any undue tension in the cloth room, but possibly carried about nine per cent moisture content.

Osnaburgs are usually made with coarse yarns without very much twist. On putting this class of material through cloth room machinery, the warp threads are pulled almost straight, practically eliminating the natural crimp which the threads would have as the goods come from the loom. After the goods are finally removed from the cloth folder and baled, the threads will assume their natural position, and this will make a short fold. It should not, however, make a full one-half inch difference in each fold.

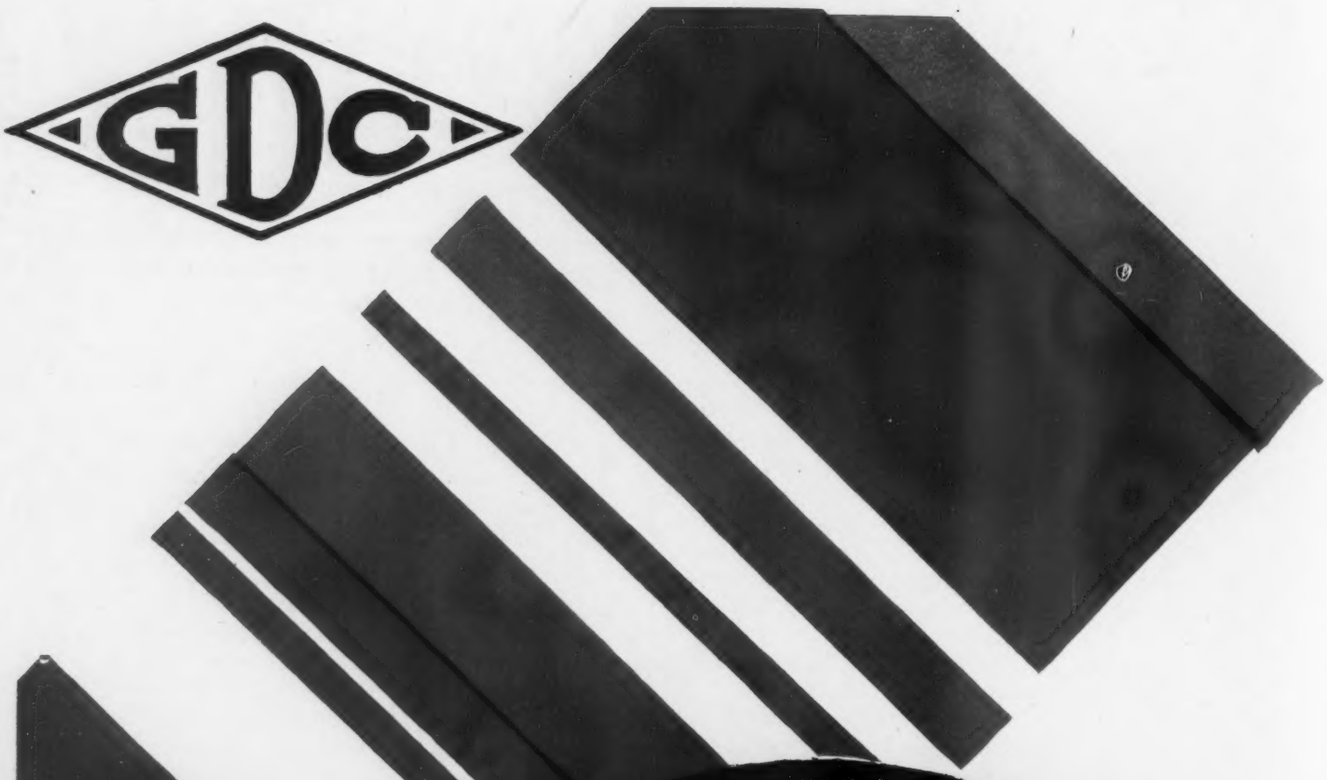
An excessive amount of moisture content will make the goods stretch more easily and after the moisture has dried out more or less, the goods will shrink in addition to the natural crimp of the threads. Any fabric like an osnanburg will absorb moisture much more easily than a fabric made of tightly twisted yarns. For this reason the shrinkage is more. Very few mills are equipped to determine accurately the amount of moisture content in goods. As this particular mill is not so equipped, they are probably putting in more than nine per cent moisture, which should account for the excessive breakage.

It also makes a difference as to which part of the cut is measured. The first few yards on a folder are usually short, as there is an excessive amount of tension on the goods when the folder is first started. The number of short yards will depend more or less upon the operator. As soon as the folder blades are running at full speed, the yards should be exactly 36 inches until near the end of the cut, when they will be a trifle over 36 inches to make up for the short yards at the start. I am speaking now of double cuts

Regarding Answers to Old Timer's Weaving Questions.

IT WAS ANNOUNCED in the December issue that in the January issue would be presented a summary of the answers to the first two questions in "OLD-TIMER'S" contest on weaving. Because of the special nature of this issue, and the large amount of material in it, we must delay the presentation of this information until the February issue.—THE EDITOR.

GDC



INDANTHREN COLORS

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about 120 yards in length. If 60 yard cuts are handled, the first few folds will be short and the remainder of the cut should be exactly the right length.

From the nature of this inquiry I should judge that the moisture content is what is causing most of this man's troubles at this point.

If the foregoing does not give the inquirer what he wishes, and he will submit further inquiries, I shall be glad to answer them.

CONTRIBUTOR NO. 4650.

Formulae of Stamping Ink.

The methods of three well-known mills in preparing their stamping ink of ultramarine blue for branding sheetings, etc.

A SHORT TIME AGO one of our subscribers requested that we obtain for him the formula that some of the mills are using in making up their stamping ink of ultramarine blue, used in branding sheeting, etc. He stated that the formula that he was using gave some trouble in smearing and not making a good clear impression. Thinking that others might be experiencing the same trouble, we thought it would be worthwhile to publish some of the information we gathered for this man.

One contributor wrote us as follows: "In making up our stamping ink we mix the ultramarine blue powder with cold water until the right consistency is obtained, being very careful to stir thoroughly during the mixing process. After the mixture stands for a while it will thicken up and must be thinned down by adding more water. It is very important that the stamping pad be watched closely, as it hardens on standing for any length of time. When not in use we keep our pads covered with a heavy damp cloth, finding that this will keep the pad in much better condition than if left uncovered. It has been our experience that the kind of stamp used will affect very much the results obtained. The solid stamp is not as good as one that is open. By this, we mean one that gives only the outline of the letter or figure. The solid stamp has a much greater tendency to smear."

Through another source we learned that the practice of another mill is to take about one quart of gum arabic and dissolve it in boiling water. Then when this is thoroughly dissolved, they add enough water to bring the solution up to about three gallons of water and put in enough ultramarine blue to bring it up to the desired shade for the purpose. We also gathered that when a machine is used for the stamping, it might be necessary to use more gum arabic than would be required if the stamping were done by hand. Then too, it seems that both the amount of ultramarine blue and gum arabic must be varied on the basis of experiments to best suit the local conditions and requirements.

A third formula secured follows: Two pints of lump gum arabic, three pints of ultramarine blue, two gallons of water, and one-half pint of glycerine. The gum is first dissolved in water; then the other ingredients added. One tablespoonful of carbolic acid is used as a preservative.

A cloth room overseer suggested that smearing might be caused by the worker who spreads the cloth, and not the stamping ink. He stated that between each piece of cloth that is stamped a piece of rag cloth is laid in order to prevent the next piece in the pile from absorbing the ink before it dries. He then pointed out that if the man who spreads this intermediate cloth should happen to drag it across the freshly stamped piece, instead of laying it down carefully, it will cause the ink to smear. He also suggested that the stamper man could put on too many pieces, which would cause the top piece to drag as it goes under the stamps, thereby causing it to smear.

"Boss Weavers and Cloth Room Men."

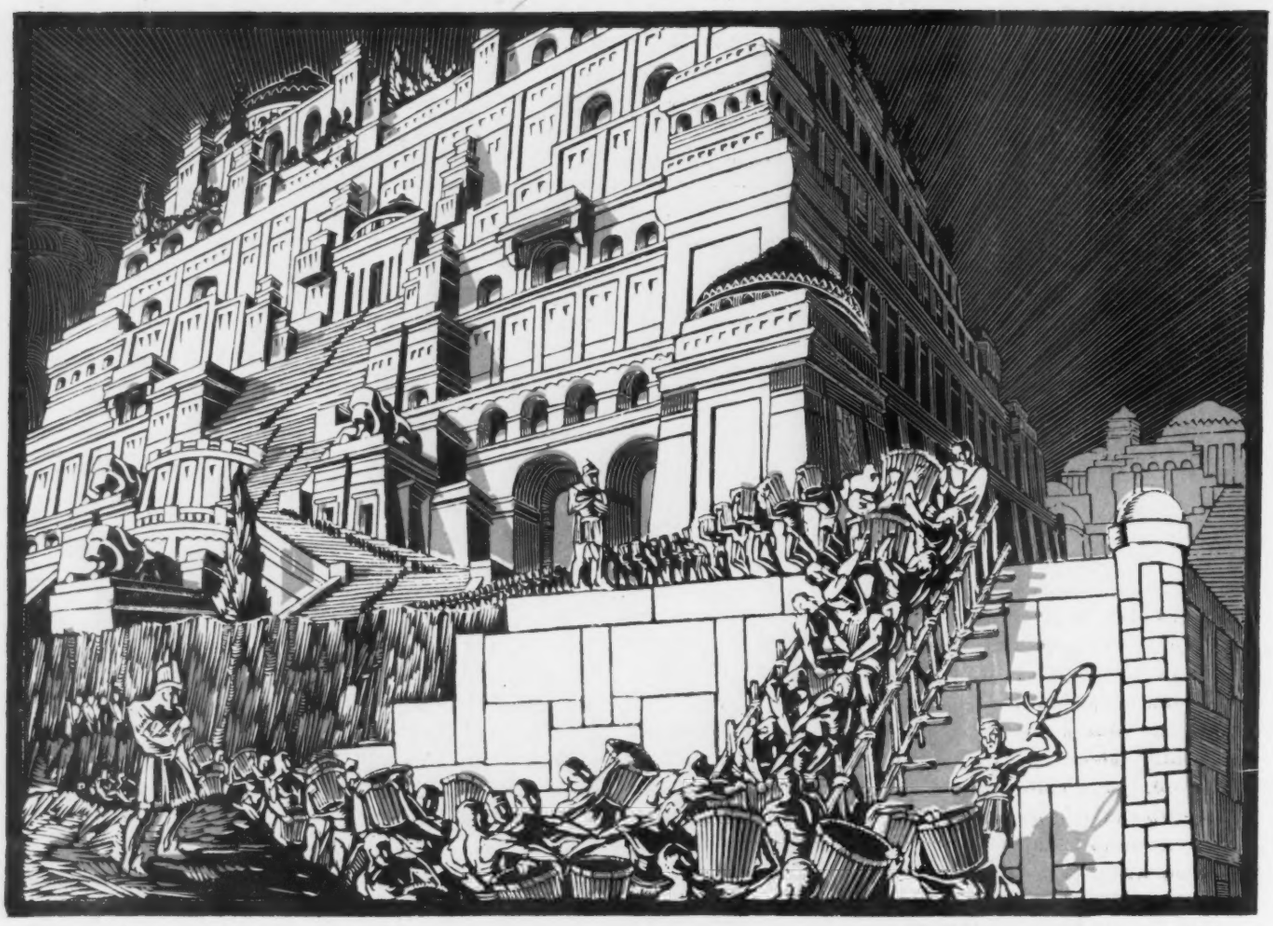
This opens up again the subject of an interesting discussion which appeared in these columns about four years ago.—The Editor.

EDITOR COTTON:

In walking through our community house a few weeks ago, I ran across some old issues of COTTON, one of them being of November, 1918. In reading that particular number, I found some interesting matter, and learned that even in those days of high wages, right at the close of the war, there were plenty of level-headed mill men to keep the discussion of COTTON going under full steam.

I was interested to note particularly that "T. A. D. (GA.)" was writing at that time, and as I ran through the back numbers, I ran across the May, 1926, issue of COTTON, in which he had an especially good article on the subject of "Boss Weavers and Cloth Room Men." By the way, "T. A. D." still contributes to COTTON, and I would like to take this opportunity to tell him that I appreciate his letters very much and assure him that they have gained for him very much respect throughout the industry. There are only two other contributors whose writings have been quite as wholesome as his. They are "OLD TIMER" and my late friend, Mr. Oliver G. Murphy. In Mr. Murphy's passing, I think the textile industry suffered an irreparable loss. Men of the caliber of "T. A. D." and Mr. Murphy are helpful to the men in the industry who are classified by Mr. Murphy as "comelings." They are men who were far-sighted enough to make a study of human nature, as it relates to the mill.

The letter by "T. A. D." in the May, 1926, issue interested me, and since it referred to some previous discussion on this subject, I looked back through several copies prior to that number, and found that you had carried on quite a lively discussion between cloth room men and overseers of weaving, as to the relative responsibility and importance of their departments. I wish you had the space to reprint this discussion for those readers who were not subscribers at the time this appeared. In his letter in the May, 1926, issue, "T. A. D." pointed out that in his opinion a superintendent is not operating under a good system if he has his cloth room man working under the boss weaver —subject to the boss weaver's orders. I will quote the following paragraph from his letter:



BABYLON'S HANGING GARDENS

THE Hanging Gardens of Babylon, one of the seven ancient-world wonders, were erected about 606 B. C. to create an artificial mountain, in the form of a building, for Nebuchanezzar's Median queen who, in Babylon's flat territory, was homesick for her country's hills. The framework was a series of stone terraces supported by arches, with stairways between, was one-fourth mile in circuit and 350 feet high. On each terrace was a layer of mould deep enough to grow plants, creepers and the most gorgeously colored and scented flowers Asia could produce, as well as trees bearing luscious fruits. The dazzling, glamorous beauty of the Gardens was the wonderwork of Assyrian slave craftsmen captured in the fall of Nineveh. Imagine the time and toil of building so stupendous a structure—the difficulty of quarrying and conveying the stones and earth to such a height!

The magnificence of ancient buildings can be charged to the straining muscles and fagging limbs of human slave labor. There were no traction engines, no motor trucks, no steam or electric trains to transport the tons and tons of stone—no steamships to carry building materials down rivers or across seas. Today, machines lighten labor, save time and neutralize distance, bringing shorter working hours—greater prosperity—higher standards of living.

The profits of textile mills are due to mass production and economy of operation, made possible by machine labor.

If your mill is still cleaning bobbins by hand, you are overlooking an opportunity to cut production costs.

The Termaco machine will clean any size of roving bobbin, at the rate of fifty bobbins a minute. It effects a tremendous saving on labor because of its swift work and because the small, unskilled labor wage paid its operator is more than offset in the increased production of spinners, who can be given two additional sides after being relieved of bobbin cleaning. By cleaning one worker's bobbins at a time, responsibility for excess roving waste can be determined and reduced. It also reworks waste in cleaning, ready for use. Bobbins are not injured and last indefinitely, and the machine reconditions old bobbins. No wonder Termaco cuts costs!

The Utsman machines clean filling bobbins rapidly and efficiently, without split ends, and are great time and labor saving devices.

The Type K Machine cleans both plain and automatic loom bobbins and certain kinds of warp bobbins.

Write for complete information about these machines. In writing, state whether you are interested in cleaning roving or filling bobbins, and if possible, send a sample of the particular bobbin you have in mind. If you are interested also in motor-driven machines, give full details, including voltage, phase and cycle of your current.

THE TERRELL MACHINE COMPANY, INCORPORATED

Charlotte, N. C.

(General Supply Co., Danielson, Conn., representatives for New England, New York, New Jersey, Pennsylvania and Canada.)

"For a weaver to have charge of the cloth room *and* the weaving, is, in my judgment, the wrong idea, providing of course that the mill is large enough to afford a foreman in the cloth room. If it is not, then the weaver should provide a good second hand in the cloth room and let him work between the second hand and the weave room, the weaver having the supervision of the two departments as a superintendent would if there were an overseer in the department, taking his bad work findings as if he were superintendent, then he might get by with it. Otherwise, when the weaver has both departments under his jurisdiction he will naturally try to get by with some inferior grading to make his weaving show up a good per cent of first quality production, as he, particularly, has no immediate boss, and it is sometimes months before this inferior grading gets to the mills, then he will have some other alibi. A state of unrest, more or less, prevails in the institution most of the time, not being exactly satisfied with the grading in the cloth room and at the same time not being able to put your hands on any one thing to tell your cloth room man. If I had not been all along here I would not feel this way about it, but I guess it is best to get all of these knocks as soon as possible for educational purposes."

I am sure that "T. A. D." is quite right. Take it for granted that the boss weaver is an honest man—and there are plenty of honest boss weavers in the industry. Even so, we know that human nature is weak, and it is sometimes very easy for some of us to follow the path of least resistance.

I read a news item in a textile periodical a few days ago that stated that Mr. So-and-So is now assistant superintendent and cloth room overseer at ———, Alabama. That is, to me, a distinctly new idea, but one which I believe should be highly successful, provided the cloth room man is capable of taking on duties of this nature, and provided the mill is of sufficient size to warrant the putting on of an assistant superintendent. As said, this idea is entirely new to me, and never having seen it in practice, I am not in position to state positively that it is good. I will state merely that it is an idea that is being practiced at this Alabama mill. But I certainly believe with "T. A. D." that the cloth room man should never have to look upon the boss weaver as his superior. The cloth room man should be an overseer—on a par with the other overseers in the mill. This would reduce the whole thing to a strictly business proposition, and raise the standard of efficiency throughout the plant.

I do not think it practicable for a man to operate a cloth room properly and at the same time be on the weave room payroll. One big duty of the cloth room man is to show up defective work to the department head at fault. If the cloth room man is on the weave room payroll, when he shows up seconds to the boss weaver, it just amounts to the boss weaver checking up on himself, and sometimes this is not effective.

For the best results, we should have a lay-out by which we can check on each other. This brings about a state of efficiency which cannot be obtained in any other manner. I don't think a private could prefer charges against a first lieutenant or major and expect to achieve very much. CONTRIBUTOR NO. 4653.

Some Questions on Weaving Broadcloth.

EDITOR COTTON:

I wish to ask some questions, through your "HOW OTHER MEN MANAGE" department, with reference to weaving cotton broadcloths.

First, I would like to have the opinions of your readers who have had experience on these goods as to whether it is practical to run four harness, with two working together, thus making it the same as a plain two-harness weave, or whether they would suggest some other method.

Second, I would like to have readers explain how the warp is drawn in the harness on these goods.

Third, when speaking of staggered cams, does it mean that the first and third harness work together and the second and fourth work together, or just what does this mean?

Fourth, what percentage of contraction is the average on broadcloth?

Fifth, what is considered a good size formula to use? I would like to know how much starch and how much compound should be used, and how much water should be used with it. I would also be interested to have those answering give their method of cooking up the size, with the time element used as well as the temperatures, etc.

The construction I have in mind is 96x64 to 104x72, with 30s warp and 36s to 40s filling.

G. W. (GA.)

Reducing Bow in Wide Sheeting.

EDITOR COTTON:

This refers to the inquiry of "CONTRIBUTOR NO. 4636," in a recent number of COTTON, who says "I would like to see in 'HOW OTHER MEN MANAGE' some discussion as to the causes of bow in wide sheetings, especially when it is torn. The cloth seems to be woven perfectly, but when torn it will bow several inches. The cloth we have in mind is 64x64, made of 22s warp and 27s filling. The warp twist is about 22.50 and the filling twist about 21.50. All of these goods are made on Draper L model wide sheeting looms, with compound and friction let-off. When we tear this cloth and put one side up to a straight edge, we can notice bow in the cloth. * * * The only thing I can lay this to is the contraction of the filling."

I have at hand samples of ducks, sateens, rep, drill, broadcloth and sheetings, which I have torn and compared the bow to that of the sample of sheeting forwarded from COTTON in connection with this inquiry. On examining the bow in the sheeting from COTTON, it did not seem to be unusually large. In fact, the sample showed a smaller percentage of bow than do any of the other pieces of cloth examined. It is realized that the other cloths are not of the same construction as the sample, but the comparison shows that the bow in this sheeting is no more than is to be expected.

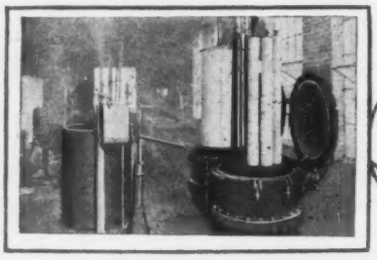
Bow in cloth, like humidity questions, are always with us. I have not found a weaver who has completely overcome the trouble of bow. I have been told of one mill that reduced the percentage of bow in

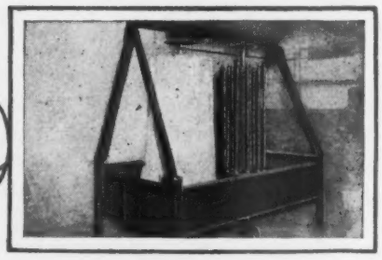
COLOR SELLS GOODS

Color will be of more style importance in 1930 than ever before, say stylists. Towels, sheets, underwear, hose, piece goods — they must be colorful or they will not sell. Leading stores, buying syndicates, chain stores, mail order houses, all are beset by demands for colorful articles, and they are ordering from those mills that can give them color.

In 1930, the tone of color will be more important. Not just any brown will do. It must be the tone of brown that has been selected as "the" brown by the dressmakers and women of fashion.

Mills that are most successful with color and in giving the exact shades which are in demand, find Gaston County equipment more than equal to the task. Accuracy of tone is easier with Gaston County equipment.





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heavy ducks by the use of a curving plate of metal on the breast beam. This curved metal guide raised the center of the cloth and thus made the cloth tighter there than at the edges. This was on looms where the cloth passed over the breast beam before going around the sand roll. It would seem that the bow might then be lessened on looms where the cloth goes directly over the sand roll by curving this roll slightly so as to make it higher in the center than at the edges. This would, of course, cause other troubles on light warps, such as sheeting warps, and would likely do more harm than good.

The percentage of bow can be lessened by running the cloth double width in the loom, as where 80-inch goods is made on a 40-inch loom. This will take the bow out of the center of the cloth, and so reduce the percentage of bow.

Well made cotton yarn has a degree of elasticity. When woven it is under tension and will tend to contract when freed from tension. Bow is probably caused by the contraction, or pull, of the filling toward the center of the cloth. It would seem that there should be a definite relation between bow, take-up in filling, and spread in reed. A cloth that has a wide spread in the reed in relation to the width of the cloth should have more bow than another cloth with less spread in the reed for the same width of cloth. Investigation will show that this is only true in certain cases. I have here a sheeting which has a wide spread in the reed in relation to the cloth width (62.60-inch spread for 58-inch cloth) and a drill that has a medium spread in the reed for its width (38.50-inch spread for a 36-inch cloth). The drill has the largest percentage of bow while the sheeting has the largest percentage of spread. In other cloths, the results would be reversed. Other factors, such as counts, yarn numbers, interlacings, etc., enter in and make the matter so complicated that it is impractical to find any rule for determining, even approximately, how much bow is to be expected.

The act of tearing the cloth will have some effect on the bow since it displaces the interlacings and gives the warp yarn a chance to contract and pull the filling. This pull will be more effective at the center of the cloth than at the edges where it is more tightly woven, and so the bow will be increased.

The following is suggested as a means of aiding "CONTRIBUTOR NO. 4636" in reducing the bow in his sheeting:

First, reduce the tension on the filling to a minimum by removing some of the friction used in the shuttle. Then, take out two turns of twist in the filling. 21.50 turns of twist for 27s filling figures out a 4.14 twist factor. This is somewhat high for filling. To reduce the twist in the filling will reduce the pull of the filling toward the center of the cloth and so help reduce the bow.

J. W. C. (TENN.)

EDITOR COTTON:

I am very much interested in the subject of bow in sheetings, and have gone thoroughly into the question of "CONTRIBUTOR NO. 4636," published in a recent number of COTTON. Several of my friends, who are well posted in the manufacture of sheetings, and I

Showing Plain Beams

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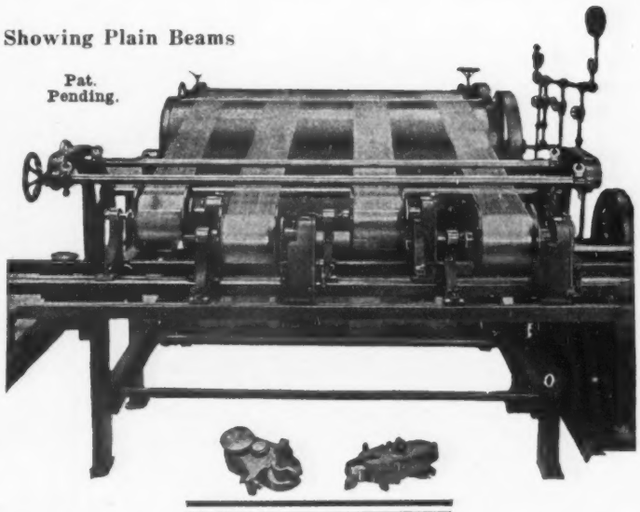

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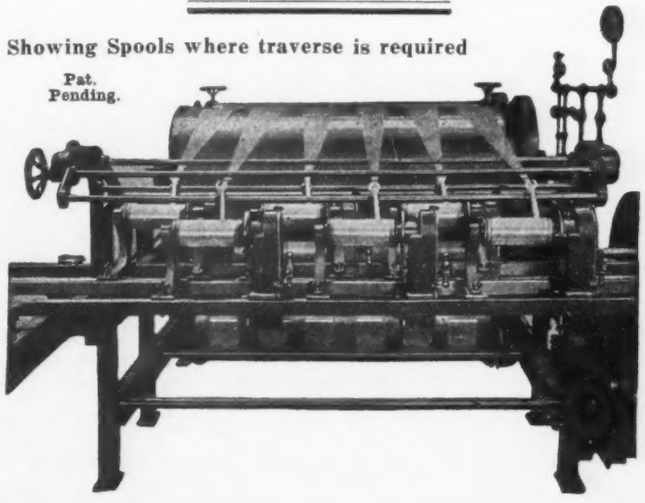

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have examined this proposition carefully by an analysis of the 64x64 sheeting submitted with this question, and after careful consideration it is our opinion that this bow in the center of the cloth is caused by improper tension in brushing the cloth. We know of nothing on the loom that would cause this trouble unless it be temples with defective burrs. The chances for this, however, are remote, and we therefore suggest that experiments be made by anyone having this trouble to determine whether or not the bow is noticeable on the goods as they are taken from the cloth roll on the loom. If not, it is then evident that it is being caused after the cloth leaves the weave room, and by testing it at each succeeding process, it is probable that it may be definitely determined just where the trouble lies. As indicated, however, it is our opinion that improper tension on the brushers is more than likely to be the cause of this trouble.

D. N. (N. C.)

EDITOR COTTON:

This is written to discuss the problem of bow in wide sheetings, based upon the inquiry of "CONTRIBUTOR NO. 4636," who said that he has this in a 64x64 sheeting with 22s warp and 27s filling.

According to our experience, there are two things which may cause this trouble. One probable cause would be this: When the weaver takes off a roll of cloth on the loom, and starts up a new roll, he may wind it too tight on one end, or on both ends, and this, when it goes across the reed, will be straight, but between the fell of the cloth and the roll, the strain on the points that are wound tighter, will be so great as to stretch the warp, which will cause the bow in question.

Another cause which we might mention as a possibility is that the delivery roll on the slasher may be too large on one end or on both ends, which would not give the same amount of contraction all the way across the warp. We might further point out that there is just so much elongation or "stretch" in any given yarn, and when some of this is taken out by one of the conditions mentioned, or from some other cause the "return" or contratcion is not going to be equal all the way across the warp, which, according to our experience, will produce the bow in question.

H. S. (GA.)

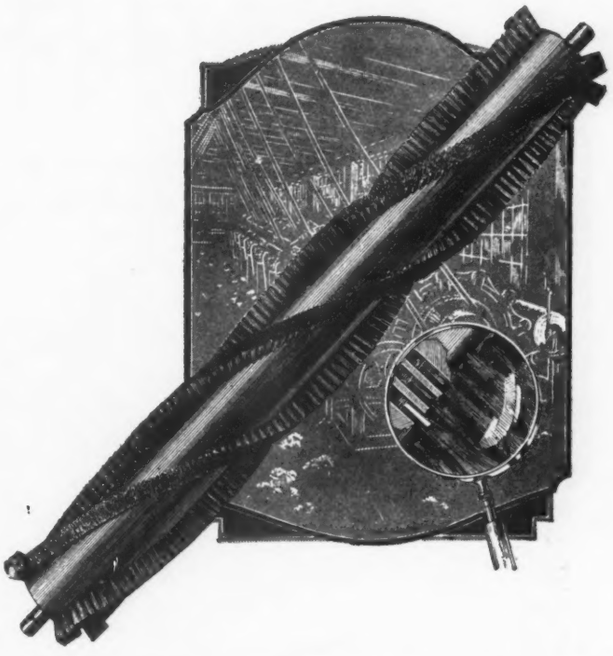
Roller Chain Data Book Issued by Link-Belt.

The Link-Belt Company has just published a new Roller Chain Data Book, No. 1257, which they state is the most complete manual for properly selecting and applying chain yet developed. The general offices of the company are at 910 South Michigan Ave., Chicago, Ill.

The company states that this 96-page book illustrates the construction of the chains and wheels, and presents many pages showing practical applications of Link-Belt roller chain on light and heavy duty industrial drives, and on all types of machinery, tractors, trucks, farm implements, etc.

The company also states that all data is clearly compiled to enable one to select the proper chain and wheels to suit individual conditions, and to figure costs. Also an additional feature of value is a presentation list of wheels up to 81 teeth. All pitches of chains are carried in stock, the company states.

PERKINS Practical Brush



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Have your worn cylinder brushes rebuilt at a modern brush factory that understands the job. Send us all kinds—card, calender, comber, condenser and sprinkler brushes. We are equipped to renew every part, shaft and all. No matter what the condition of the core, we build a new brush from the old one. This service is more than ordinary brush repairing. It's a rebuilding by experts.

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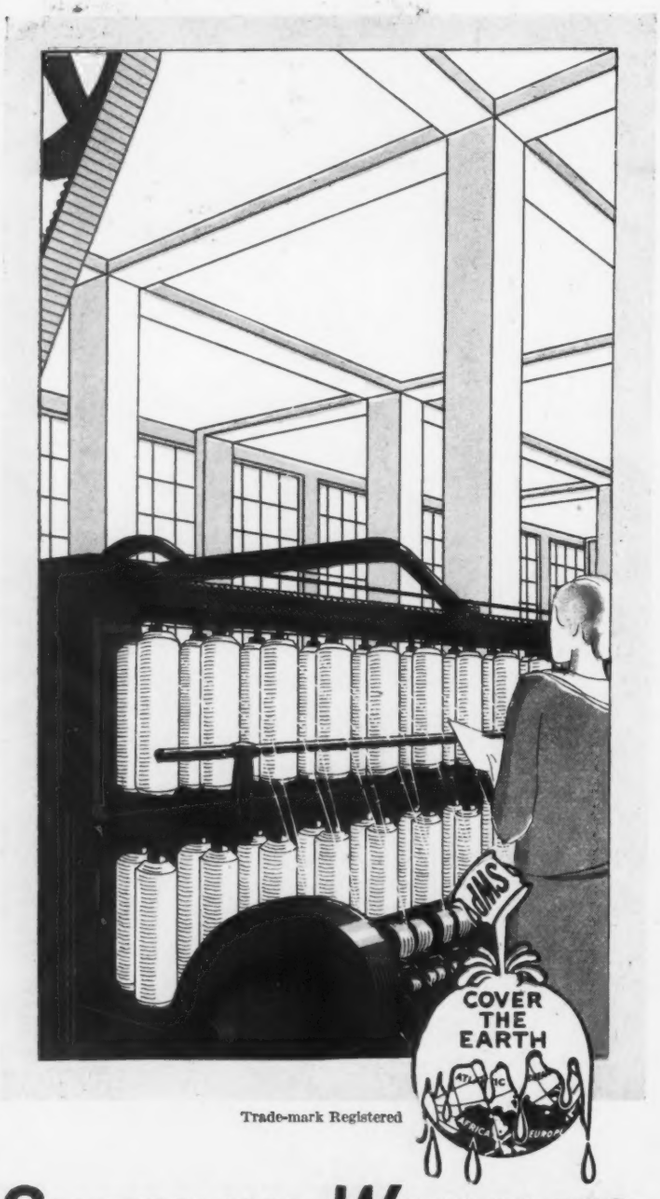

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More light without more windows

In most mills and factories the amount of working light can be increased from 35 to 50 per cent without costly alterations. Light can be reflected and diffused throughout a building by the proper painting of interior walls and ceilings.

Sherwin-Williams Save-Lite Industrial White Wall Finishes take daylight or artificial light and diffuse it evenly into every angle and recess of a room. They assure clear visibility at all times and relieve workers of eyestrain.

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Substantial savings have been effected by S-W Save-Lite in many important cotton mills. Such savings are the direct result of increased production, reduced spoilage and fewer accidents. These same mills have also enjoyed a noticeable improvement in the morale of workers. The standard of quality in finished products has also been raised.

Sherwin-Williams Industrial White Finishes are provided in Save-Lite Gloss, Eg-Shell or Flat-White. They level well under spray or brush—wash easily—and stay white. Save-Lite finishes have excellent covering ability and are economical to apply.

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Note: Our office at Spartanburg, South Carolina (224 Montgomery Building), is maintained for the convenience of mill owners and operators in that section.

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Seconds in Tentering and Calendering.

ONE OF OUR FRIENDS recently asked what is considered an average percentage of seconds produced by the tenter and calender in the finishing department of a cotton goods mill where all the goods are sized, tentered and calendered. He makes goods 36 inches wide which weigh from 2.50 to 3.00 yards to the pound, yarn numbers from 10s to 14s; used in the playwear trade. The majority of trouble he has is torn or snagged selvages, made at the tenter frames.

No doubt this question, along with the replies we received after submitting the question to several mill men, will prove to be of interest and benefit to some of our readers, hence a good reason for its publication.

One man answers as follows: "Would advise that the amount of seconds produced in the bleaching and finishing plant depends upon several sets of conditions which might or might not exist in the plant in question.

"Light weight, full bleached goods would probably produce more seconds than the heavier weight. The conditions mentioned above may arise from poorly trained help, poorly located machinery and careless handling, soiled overalls or aprons used by the employees, dirty hands and finger marks, all of which would naturally be the result of carelessness on the part of the operators.

"We can only give you what is a fair average of the total seconds of a plant where all of the foregoing conditions are absent, or nearly absent in the handling from the bleach house to the makeup department. We would say that a good average in a well operated plant where care is taken as to the proper arrangement of machinery and the proper training of the help, being careful to eliminate dirt and careless handling wherever possible, would be about 1.25 per cent, and would run from this probably up to 1.85 per cent. Not over 1/10th of this amount should be charged to either the tenter or to the calender, or 1/5th of the full amount of seconds charged to the tentering and calendering alone. In some cases this would be high for these two machines, as the majority of seconds in a finishing plant are produced in the bleached house and starching rooms, particularly where the starching is done as an isolated operation, and more particularly so where it is a backfilling process.

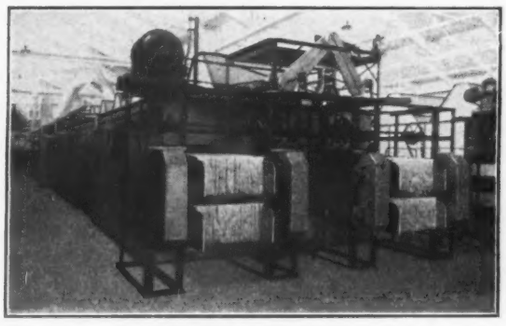
The substance of the other replies to the question concerning percentage of seconds show that many mills have from 1/10 to 1/4 of one per cent seconds in tentering and practically no seconds in calendering.

One man states that it is a good idea for the mill to have some sort of automatic air guides so that the cloth will be directed uniformly straight into the tenter frame, and he would advise anyone starching the cloth prior to tentering not to try to tenter it bone dry, but to allow the cloth to condition so that it will regain moisture before tentering.

This same man says that a little free steam under the tenter will also assist in eliminating tenter tears. He also states that running tenters too fast is a source of much trouble and that he would advise not to run them over 60 to 65 yards per minute.

Furthermore, it may be well to have the gates of

Modern DRYERS *for Modern Mills*



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THE "HURRICANE" System of warm air circulation provides ideal drying conditions, with a *minimum* of *heat* and *power*. A number of recent improvements add greatly to drying efficiency, and convenience in handling the yarn.

"HURRICANE" MASTER STOCK DRYER—an improved machine for drying large quantities of cotton stock, quickly and efficiently with a minimum of heat and power. Automatic feeds. Conveying aprons any width.

AUTOMATIC LOOP DRYERS for knit goods, plushes, crepes, and other goods, drying by warm air, without tension.

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147

the tenter chain dressed with a file that is smooth on one face and raspy on the other. This man also recommends that the tenter chain be cleaned with ammonia once every week to be sure that the gates are in operative condition.

Another contributor says he cannot see how there could be any seconds from the calender if the machine is properly lined up and the rolls protected from pins or other small pieces of metal by a guard or bar which might be called a cloth cleaner and which scrapes from the cloth any foreign substance before entering the calenders.

Torn or snagged selvages made on tenter frames could possibly be eliminated by having the machines overhauled and properly adjusted by one who knows his business, preferably by a man from the shop that built the frames.

We would like very much to know just what some of the others are doing to keep their percentage of seconds as low as possible and hope that letters will soon be coming in from other readers telling us about their methods.—EDITOR COTTON.

Paul Seydel Discusses "Invisible Loss" in Slashing.

EDITOR COTTON:

I have been away for a couple of months in Europe, and upon my return. found among other things, the October issue of COTTON, in which you published the report of the meeting held by the Textile Operating Executives of Georgia at Georgia Tech in Atlanta on September 17th.

I was particularly interested in the slashing discussion, as conducted by George S. Elliott, of Pacolet Manufacturing Company at New Holland. With your permission, I should like to discuss particularly the one point brought up in this discussion with reference to "invisible loss" in slashing.

The question asked was, "What is the difference between the weight of the ingredients used in your size mixture (except water) and the weight added to the yarn in slashing? Base this on the percentage of the net raw yarn. In other words, how much invisible waste is there between the weight of the starch and compound you put into the size mixture and the amount you get in added weight of yarn?"

Walter B. Dillard, Jr., of the Columbus Manufacturing Co., Frank Cooper and E. H. Rogers, of the Fulton Bag and Cotton Mills, and Mr. Elliott, were among those reporting tests in answer to this question, and all of these men indicated that they had found "invisible losses" to occur in the slashing process.

In other words, Mr. Rogers explained that in looking over the cost figures of another mill and adding the amount of money spent for starch and compound, figuring back revealed that the amount was about 18 per cent of the raw yarn. Then, he said, "the question naturally brought itself up, 'How much are we putting on our yarn? We know we are leaving 6, 8, 10, or some other figure on the yarn, but how much starch and compound are we paying for to do that?'"

Mr. Cooper, giving the details of the Fulton Bag test, spoke as follows:

"I ran the test for four or five weeks, and I did not take one particular set, but took them all. The average for the week was 47,592 pounds of soft yarn, and 52,193 pounds of hard yarn, a gain, in sizing, of 4,601 pounds, an average per cent of 9.66. During the same period the average compound used was 5,750 pounds, and this gives a percentage, based on the actual size and compound, of 12.07 per cent, leaving approximately 2½ per cent loss, based on the amount of soft yarn sized.

"Then I made a great many tests of the amount of moisture in the soft yarn and the hard yarn, and the average of these tests showed 8.2 per cent in the soft yarn and 6.4 in the sized yarn. We therefore were probably drying it a little too dry, as there was a difference of 1.8 per cent.

"Taking the 9.66 which showed at the front of the slasher, we got 11.46 per cent effective size against 12.07, which stil leaves .64 per cent unaccounted for, based on the total soft yarn. This leaves an effective size used of 94.9 per cent, losing 5.1 per cent of the size we made, or the weight of the compound ingredient."

I have quoted thus liberally from the report in order to supply the background of what I shall have to say.

In February, 1926, COTTON, you published an article under my signature, in which I believe several statements will explain to a certain extent where the loss mentioned can be traced to.

I beg leave to quote herewith the following paragraph from the article which appeared in the February, 1926, issue:

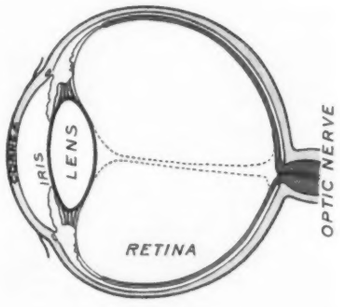
"Air-dried starch contains nearly 20 per cent of water as an average. This can be eliminated by heating in dry air at a temperature between 100 and 105 degrees Centigrade. If this dry starch is exposed to moist air it will absorb between 20 and 35 per cent of water. Dry starch may be heated to 160 degrees Centigrade without alteration; above this temperature it is converted into dextrine."

It is my opinion that most of the loss referred to in this discussion is traceable to the fact that both starch and cotton contain widely varying amounts of moisture. Especially is this true if potato starch is used, but it will be readily understood that if the starch is weighed without drying, there will be an aparent loss; and if an attempt should be made to drive out all of the water, the starch will be de-hydrated, with the result that the starch will be turned, partially at least, into dextrine, if the work is not done with considerable care. Therefore, starch is dried out, as a rule, at low temperature—not sufficient to drive out all of the water—and it is considered acceptable to buy starch containing a considerable amount of moisture.

You may buy corn starch from a manufacturer who dries it down as low as five per cent, but if kept in a moist place it may absorb quite a considerable amount of moisture, and this may vary considerably from one bag to another. It is also possible that cotton may vary from one bale to another, easily 3 per cent or even more. Therefore, there are many factors to consider

Tall ones see farther than short ones

SEEING is simply the brain cell impression of light which enters the eyes. So we can see to any distance from which light can reach the eyes. And, the earth being round, the higher one's eyes are—other things being equal—the farther will be the distance over the earth's curve from which light can reach them.



Like a camera—the eye. Light enters the lens (pupil)—strikes the film (retina)—and the optic nerve carries the "negatives" into the brain, where they are developed. Quality of light reflected by the object determines sharpness of the picture.

Obvious though it is, this point is made here, merely to illustrate and to emphasize one reason why your eyes see more sharply and clearly by Cooper Hewitt light.

It's because, from the long (50-inch) tube of this radiant mercury-vapor lamp, *more light* can reach your eyes than from a point source of light. There is almost perfect diffusion of light. Wider areas are illuminated. And light reaches your eyes from within, around and from under machinery and other objects in every place where it is used.

Not only that, but the *quality* of Cooper Hewitt light *affords greater seeing power.* Its luminosity is composed *almost wholly* of the *cool, yellow-green* rays of the spectrum—known to science as the *best-seeing* rays. All objects, under Cooper Hewitt light, stand out as sharply and clearly as if magnified. And there's *no glare—no dark shadows*—because the factors which produce these are absent from Cooper Hewitt light.

The Cooper Hewitt spectrum shows that over 90% of its luminosity is in the cool yellow-green rays—the best-seeing rays known to science.

We should like to prove these and other advantages by a trial installation. There is no obligation to purchase. Address: Cooper Hewitt Electric Co., Hoboken, N. J.

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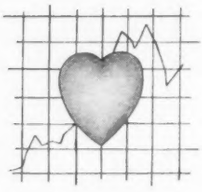
[See next page]

There's the warmth of Humanity



in these cold statistics

As straws show which way the wind blows, so commonplace figures in a bookkeeper's ledger may often tell a story that truly ennobles humankind. Here, for example, told in such figures, is a story which plainly says:

❦

Every year executives in American industry give more and more thought to the welfare of their employees. Every year sees more and more industries turning to those inventions and devices which modern knowledge has found to be of benefit in promoting the comfort and health of workmen. And in very recent years this trend has advanced most remarkably —including, indeed, a rapidly growing appreciation of what science has lately disclosed as of utmost importance to both the workman and industry—proper and adequate illumination.

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Here are the figures which tell that story: The sale of Cooper Hewitt mercury vapor lamps exceeded in 1929 the previous *record* year by *33⅓ per cent.* The best scientific authorities agree that this is the light by which human eyes see best.

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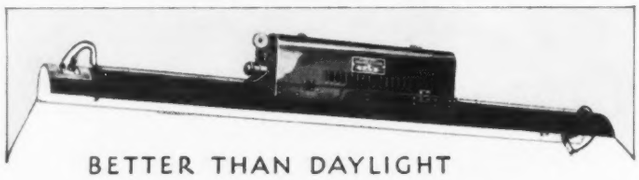
AN interesting, simply written booklet on the interesting subject of light and the problems of factory lighting is yours for the asking. It explains, as its title indicates, "Why Cooper Hewitt Light is Better Than Daylight." Write for it.



BETTER THAN DAYLIGHT

COOPER HEWITT

A General Electric Organization

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in making such a test that will readily explain a three per cent apparent discrepancy, as reported by Mr. Dillard in his test.

Paul Seydel, President,
SEYDEL-WOOLLEY COMPANY.

Drawing-In Draft, Etc., for 3-Leaf Work.

EDITOR COTTON:

In this letter I am attempting to answer the questions asked by "CONTRIBUTOR NO. 4582" on 3-harness work. In regard to his question as to how the selvage and body should be drawn in the same harness in order to make the best looking selvage, I believe this can best be understood by referring to Fig. 1, which shows the ground weave, or the weave for the body of the cloth, to be a one up two down right hand twill, while the weave for the selvage is a one up two down pointed twill weave. As shown by the drawing-in draft, Fig. 2, the selvage ends are drawn on the same harnesses as the ends of the body of the cloth. The best effect is obtained by using as near a plain weave as possible for the selvage.

He also asked how the cams should be run for a filling flush twill, and how they should be run for a warp flush twill. I think Fig. 3 will be adequate for

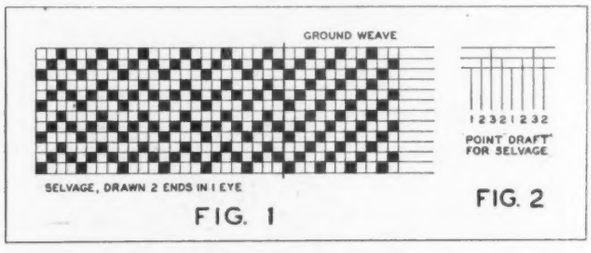


FIG. 1 FIG. 2

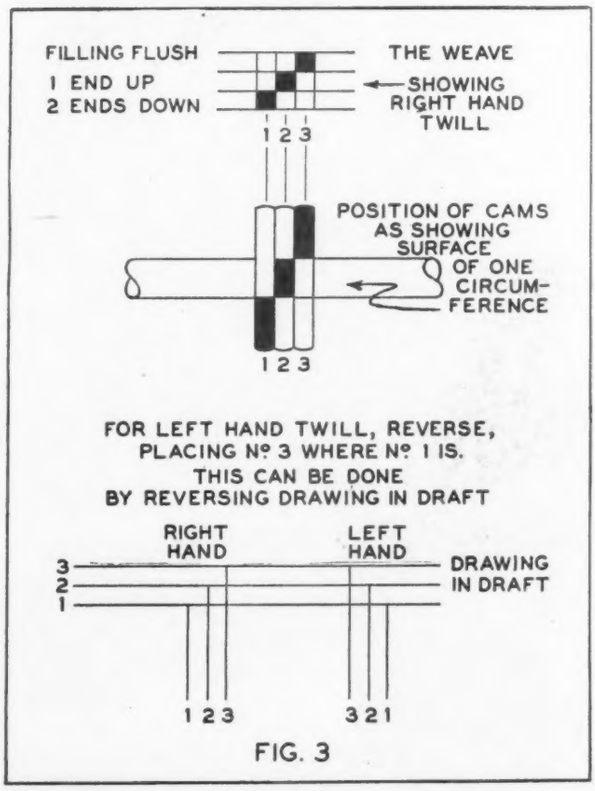


FIG. 3

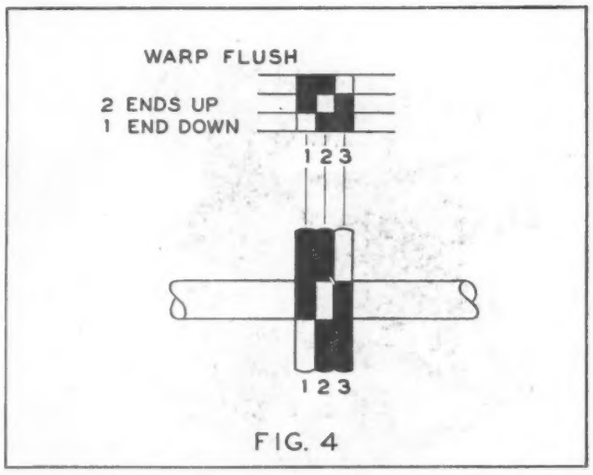


FIG. 4

showing the method of setting the cams for a filling flush twill. Here the shaded portion of the cam represents the extended part of the cam that will cause the harness to remain down while it is in contact with the cam follower. Then, as shown by Fig. 4, by having the extended portion of the cam include a greater part of the circumference of the cam than in Fig. 3, a warp flush twill is produced.

The last question asked by "CONTRIBUTOR NO. 4582", as to the best method for making a right-hand twill and the best method for making a left-hand twill, was one that has caused much discussion. As most everyone probably knows, a right-hand or a left-hand twill may be made by reversing the cams or drawing in draft. No doubt it is very obvious. referring again to Fig. 3, that if the cam for raising harness No. 3 is placed in the position of the cam for raising harness No. 1 and vice versa, a left-hand twill, instead of a right hand twill, will be the result. If a filling flush is weaving face up, a warp flush face down, I would suggest reversing the cams instead of the drawing-in draft to change from a right-hand twill to a left-hand twill.

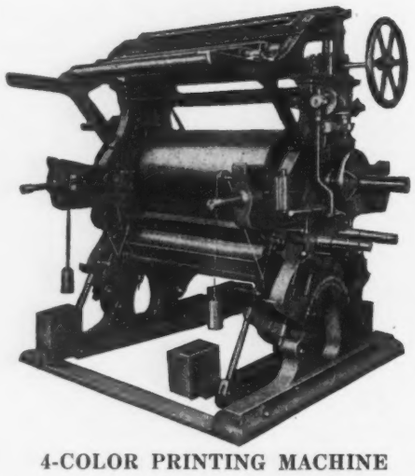
CONTRIBUTOR NO. 4612.

Answer from Hank G. Spindle.

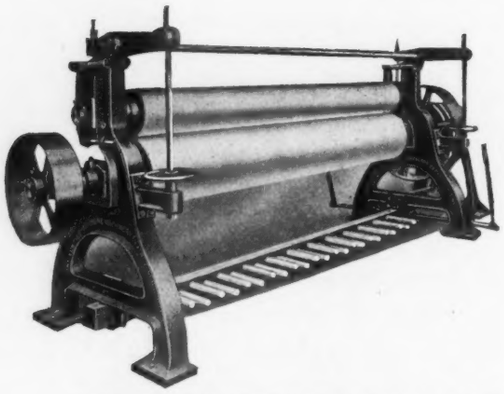
IN RESPONSE to our suggestion, a number of readers have submitted questions to Hank G. Spindle for discussion. One of these came from a reader in Rhode Island, and since the subject he brings up, and Hank's opinion on it, will probably be of wide interest, we are publishing the correspondence below.

The man noticed Hank's reference to the use of a wooden roll as a top middle roll, in his article in the July number. This man pointed out that he has found if these rolls are light weight, when the atmosphere becomes damp, the roving will not draft correctly, going right on through and creasing the top front roll. He said he uses 1¼-inch American cotton, spinning 85s filling from 10-hank double roving, on a double boss roll, the wooden roll weighing 1,334 grains. He wanted to know what Hank could suggest in connection with a difficulty of this kind with the light wooden roll. This man also made reference to Hank's suggestion in the July number about changing the num-

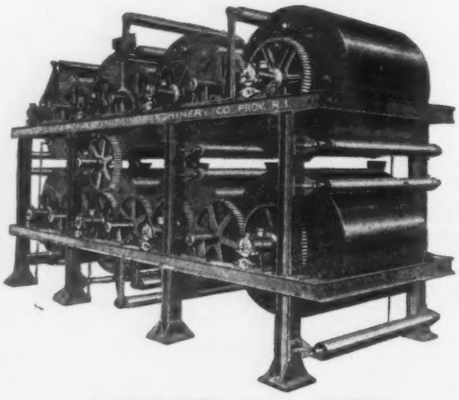
A MODERN PLANT



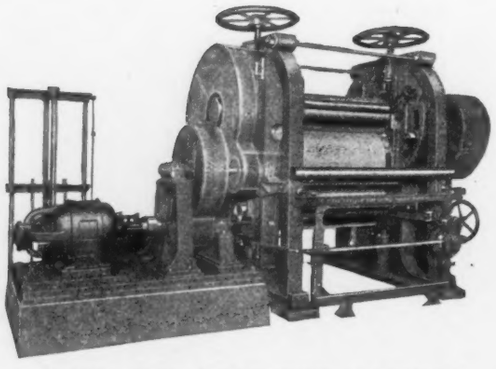
4-COLOR PRINTING MACHINE



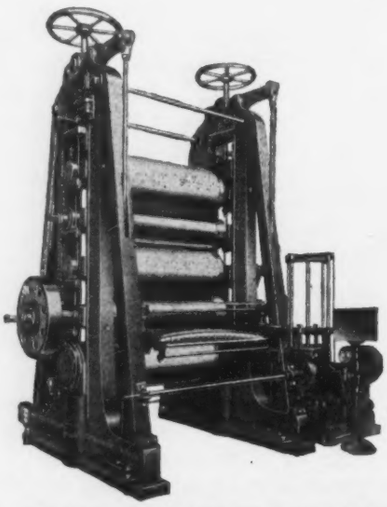
BLEACH HOUSE WASHING MACHINE



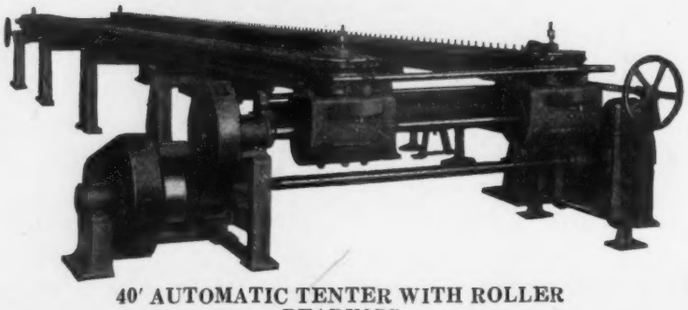
8-CYLINDER BACK DRYER



3-ROLL JUMBO FRICTION CALENDER



5-ROLL HYDRAULIC CALENDER WITH "TEXTILE" ROLLER BEARINGS



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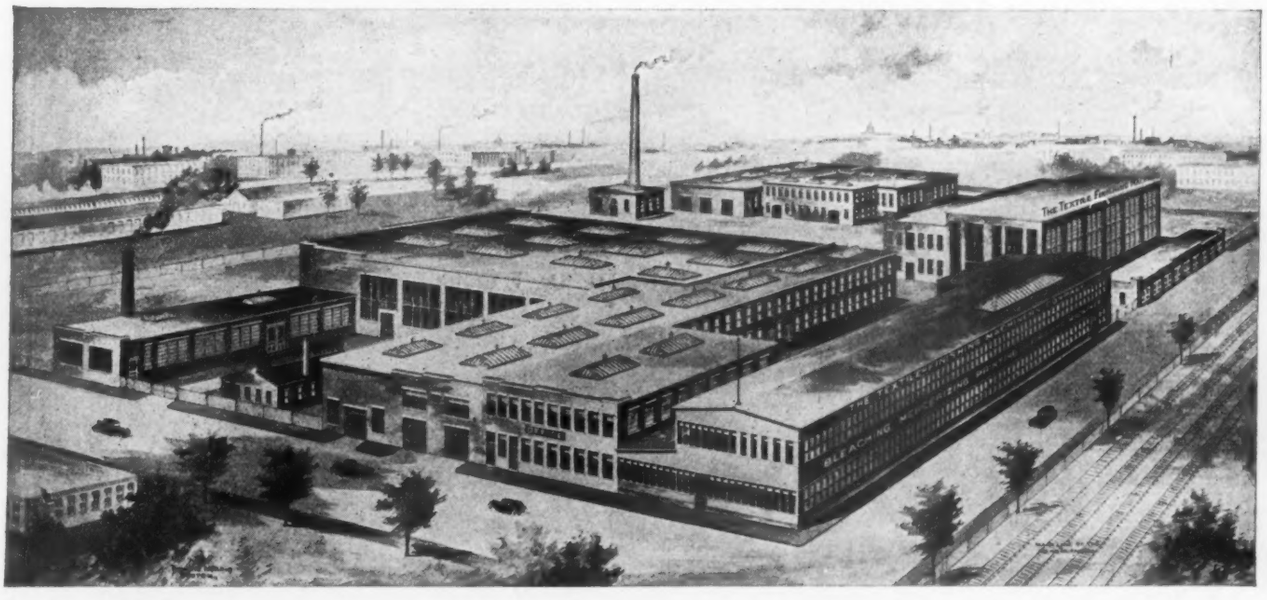

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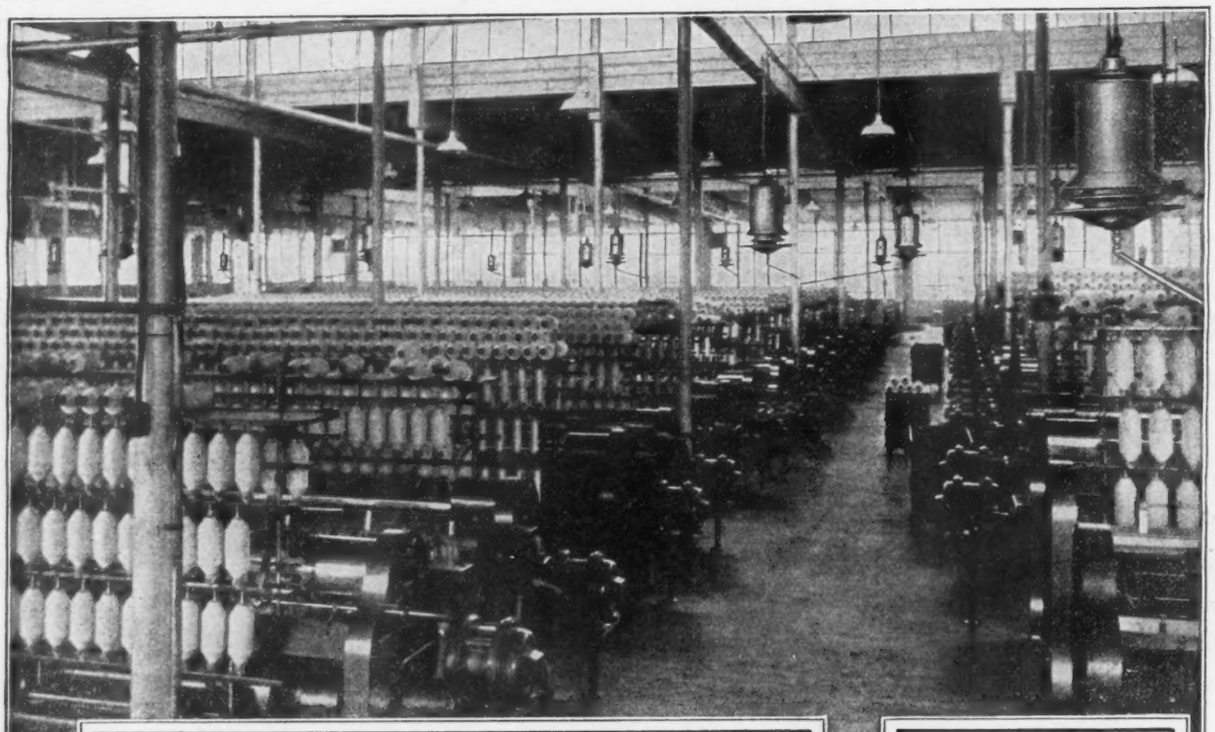

THEY INCREASED PRODUCTION

with less cotton for the same count of yarn

A Southern mill installed a modern automatically controlled humidifying system and here's what happened.

First—They were spinning 8's. Formerly, to be sure that the yarn would reel slightly on the heavy side, they set for a 7.80. Since the new humidifiers were installed, they have been setting ¼ numbers lighter, and the yarn is still reeling 7.80 off the frames.

Second—Sweepings in the spinning room are one third less. Spinners formerly ran four to five sides, being paid 37¢ a side. Now they run six to seven sides, at 33 cents a side, and consider the work much easier. In other words, their wages have been reduced per frame, but they are making more money per week under better conditions and reflect their satisfaction in their work.

Third—Formerly there were seven sweepers at $2912.00 a year. Now only four are used, a saving of $1248.00 per year. The expense of recovering rollers had averaged $360.00 per month. It now runs $300.00 a month, or a saving of $720.00 a year.

Fourth—and most important,—The front roll speed was increased 18 r.p.m. which meant a substantial increase in mill's production.

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They said: "It can't be done; you can't write about actual humidification facts in textile mills without using dry-as-dust terms."

But we've done it and 5,000 mill men are chuckling over the breezy style of "Amco Air-Plain Tours Through Many Mills." Not a dry, technical treatise but interesting conversations that take you from mill to mill by airplane and tell about practical first hand experiences under the guidance of James W. Cox, Jr., consulting textile engineer.

Join these Air-Plain Tours today—one each month—through thrilling textile troubles in many mills from Maine to Mississippi. It will be a pleasure to have you as our guest on each of these tours. Write us today.

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ber of teeth in the middle roll gear, having one tooth difference.

Hank's Reply.

Hank has kindly replied to this letter in the following words:

"My answer is based to some extent on experience, as it so happens that we are now spinning the count he mentioned, from the same length of staple. This man does not say he uses humidifiers, but I suppose he does and in making this answer that will be taken into consideration. As indicated, these opinions are based on experiences in a given plant, and are not guaranteed to remedy his troubles, but I hope they will be worth trying out.

"In the first place, the function of the light running wooden roll is not to create draft between the back and middle roll, that is any more draft than there would be if the middle roll ran with one tooth less than the back roll, and no draft at all if the roll is light enough, between the back and midde roll. The only function that the light middle roll should perform is to hold the roving in place so as to deliver it to the front roll, on the bossed section of the steel roll, which of course would be the right place on the top leather front roll. This middle roll can be removed and still spinning of a good quality can be made, but the ends of roving are more apt to run to the side of the bossed section of the steel roll, hence the necessity of a middle roll.

"This man says his roll weighs 1,334 grains. We use for this number, 85s, a roll weighing 900 grains. All of the clearers are on the slats and tacked up out of the way, so that there is no chance for the middle roll to rub and thus stop. The ends of these rolls should be carefully cleaned and no small bunches of cotton allowed to remain at the end of the roll, as this will bind between the end of the roll and the roller bars. They should also be made with a small section in the middle of the roll or between the ends, so that there will be no chance for the stirrups to rub them—or, I should have said, no chance for the roll to rub the stirrup.

"The whole idea of the light roll is to permit drafting from the front to the back roll, without the interference of the middle roll, thus you may close up the rolls entirely. My judgment then is that this man has a roll that is too heavy and the trouble he has with the drafting of his roving, while it is due to some extent to the heavy roll, is also in the amount of twist and in his humidity conditions. I would say, from our experience, that both have a part to play in his difficulty.

"I do not know, of course, just what twist he carries in his roving, but in 10-hank we would put in 3.75 to 3.80. Any more than that would make the roving hard to draft in case of a little excess of humidity. We have an automatically controlled system of humidification, and when this is set to knock off at 55, we have no trouble with drafting the roving, but when the humidity goes higher than this, we do have trouble. For example, it is not good policy to run 60s and 80s up to 100s in the same room, on account of the humidity necessary for each being so different.

Better Lubrication at *Less Cost* per month

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Modern Textile Lubricant

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Let your other textile machinery get the benefit of this test.

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I believe that if I had the situation that our friend speaks of, I would try a little less humidity. If he had no humidifiers he would have to control this by shutting his windows, or by using a little steam in extreme cases to dry out the plant. Thus I believe that his trouble is either too much twist in his roving, or too much moisture, or a combination of both.

"There is one thing that I note which is rather unusual, in my opinion. That is that he is making 85s from 10-hank double roving. This would be an unusual draft for us. We are at present using 18-hank double roving to make 85s to 100s. This is a short draft, but it is satisfactory, and as we have plenty of jacks, we are able to keep up. He might not be so fortunate. I do not know just what effect his long draft has, but I would think that his end breaks would be numerous.

"With reference to the roll gears, I should have said, in my article in the July number, that in changing the number of teeth in the gears, on most frames, both the gears on the middle and the back roll will have to be changed."

HANK G. SPINDLE.

Why Yarn Breaks Better at Night.

EDITOR COTTON:

This refers to a letter signed "I. P. (N. C.)," and while I shall not attempt to go into the question of how to get better breaking strength on his 50s single yarn, I do wish to comment on the question he brings up about yarn breaking stronger at night than in the day time.

If your contributor will refer to some of the bulletins issued by The American Society for Testing Materials, and also the Bureau of Standards of the United States Department of Commerce, he will find that the breaking strength of yarn bears a definite relationship to its moisture content. The coarser the yarn the more definitely this variation can be determined, and charts have been prepared showing the variation at different percentages of regain. The finer counts fluctuate more than the coarser yarn with regain changes.

The strength of cotton yarn is dependent almost entirely on the friction existing between the numerous fibers twisted together, and moisture causes these fibers to cling together tighter than they will when dry. A given piece of yarn may easily break 20 per cent less bone-dry than when properly conditioned.

Generally speaking, the air at night is much damper than in the day time, and the regain will go up at night. The increase in break that your contributor notices is undoubtedly due to this increase in moisture.

Mills that have been correcting their picker lap weights for moisture variation can testify to the great increase in regain during the evening hours. The instrument used by some mills for indicating the regain may fall as low as five per cent on a Summer afternoon, but after sundown it will begin to rise and may show as high as 10 per cent to 12 per cent regain by three or four o'clock in the morning. Naturally, the yarn broken under such varying conditions will show a corresponding variation in break.

If your contributor will put some of his yarn into a

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conditioning room which is held at a fixed regain he will find that the break will be exactly the same at any hour of the day.

CONTRIBUTOR No. 4679.

Getting the Right Tension on Slubbers.

Several answers to the question as to why a slubber runs slack until half-full and then tight for the rest of the doff.

EDITOR COTTON:

You recently published an inquiry from "V. T. (GA.)" which asked "Why do the ends on a Saco-Lowell slubber run slack until the bobbin is about half full, and then run tight for the rest of the doff? We are making a .70-hank roving and putting seven wraps per inch on the bobbin, which always gave me good results. All gears check with the tables in the catalog."

In my opinion, the reason why a mill does not get good tension on a Saco-Lowell slubber or on any other roving frame is that the man in the mill who is competent, usually, to adjust the roving frame is too busy to do that, for it requires setting the frame and then watching it clear through the setting to see that it is right. Oftentimes the man who has the time to do this is not quite sufficiently skilled. This means that the reason a good tension is not secured is that the cone belt is not started in the right place and that the right gears are not used in all places, and usually the gear which is overlooked is the lay gear. Perhaps the question might have been worded as follows: "Why does the Saco-Lowell slubber, when started at a good tension, run slack until the bobbin is half full and then run tight for the rest of the doff?" This condition is commonly produced by too open a lay. A lay should be close enough so that each layer of roving will increase the diameter of the bobbin by a uniform or like amount. If the increase in the diameter of the bobbin is even, as described, a perfect tension may be had from the uniform step-along of the cone belt.

If the lay is too open, the first few layers drop in between the preceding layers and do not increase the diameter of the bobbin as much as expected by the cone. Also after several layers have been put on in this too-open way, and the bobbin has been say half filled, the elasticity of the cotton will spread so that thereafter the filling in between of subsequent layers is less noticeable, and the tension appears to change in consequence. It is natural to use a small tension gear to help the slack tension, with the result that as the bobbin fills the rest of the tension runs too tight, because it is a fact that even if the lay be too open and the first layers fall in between the preceding layers, after the bobbin is half or one-third full, the roving piles up and the bobbin increases in diameter faster than it does at the start with an open lay.

It will readily be seen that when a bobbin increases in diameter slowly and then faster, an uneven tension must result; for the tension change gear provides for an even step-along of the cone belt, and the cones are designed to provide the required speed for a bobbin that increases a like amount with each additional layer. The cone belt should be started in the right place for the first lay, and the right tension gear provided together with that, and thereafter do not fight the cones or the tension, but provide the lay gear which will build up the bobbin uniformly.

Another cause that may produce a similar condition is slippage of the cone belt. If the frame is out of line, or the bobbin gears drag because of being dirty, or because of not being oiled with suitable lubricant, obviously the result will be a failure to drive the bobbins at the expected speed. Naturally, a cone belt has a tendency to slip; it is most likely to slip on the small end of the cone or at the start of the set, and this slippage will be caused by any unreasonable overload from any cause. The slippage will not be uniform throughout the length of the cones, and the tension would naturally change accordingly.

When the overseers or fixers have difficulty with the tension, they frequently do not go quite far enough in their analysis of the difficulty, and are more inclined to attempt to cure the system than they are to treat the disease by attempting to eliminate the cause. In other words, they are more apt to blame the cones or the tension than they are to seek further; to eliminate the underlying cause. A uniform tension can be gotten not by changing the cones of the tension gearing, but by removing the obstruction which prevents the mechanism from working as it would work under proper conditions, and as it is designed to work.

CONTRIBUTOR No. 4666.

EDITOR COTTON:

In the November issue, you published a question from "V. T. (GA.)" as to how to prevent the ends on a Saco-Lowell slubber from running slack until the bobbin is about half-full, and then run tight for the rest of the doff? He said he is making a .70-hank roving and putting on seven wraps per inch on the bobbin; and that all gears check with the tables in the catalog.

Maybe I can help him out on this. On a 12x6 Saco-Lowell slubber the cone belt should be set 1⅞ inches from the end of the cone to the edge of the belt. On a 11x5½ slubber, the cone belt should be set ½-inch from the end of the cone to the edge of the belt. On a 10x5 slubber, the belt should be set to 2⅝ inches from the end of the cone to the edge of the belt. (These settings are given in the company's Second Edition catalog).

Now, I would suggest first that "V. T." or anyone else having this trouble check up on this. If the setting here is correct, then he should put a one tooth larger gear on the bottom cone, and set the belt to where the empty doff will start off all right, and put eight layers of roving to the inch instead of seven.

I had this same trouble on a 10x5½ machine, and overcame it by putting on a one tooth larger gear on the bottom cone, and setting the belt further away from the end of the cone at starting in on an empty doff.

R. F. (GA.)

EDITOR COTTON:

I note the problem submitted by "V. T. (GA.)" in the November number with a Saco-Lowell slubber on

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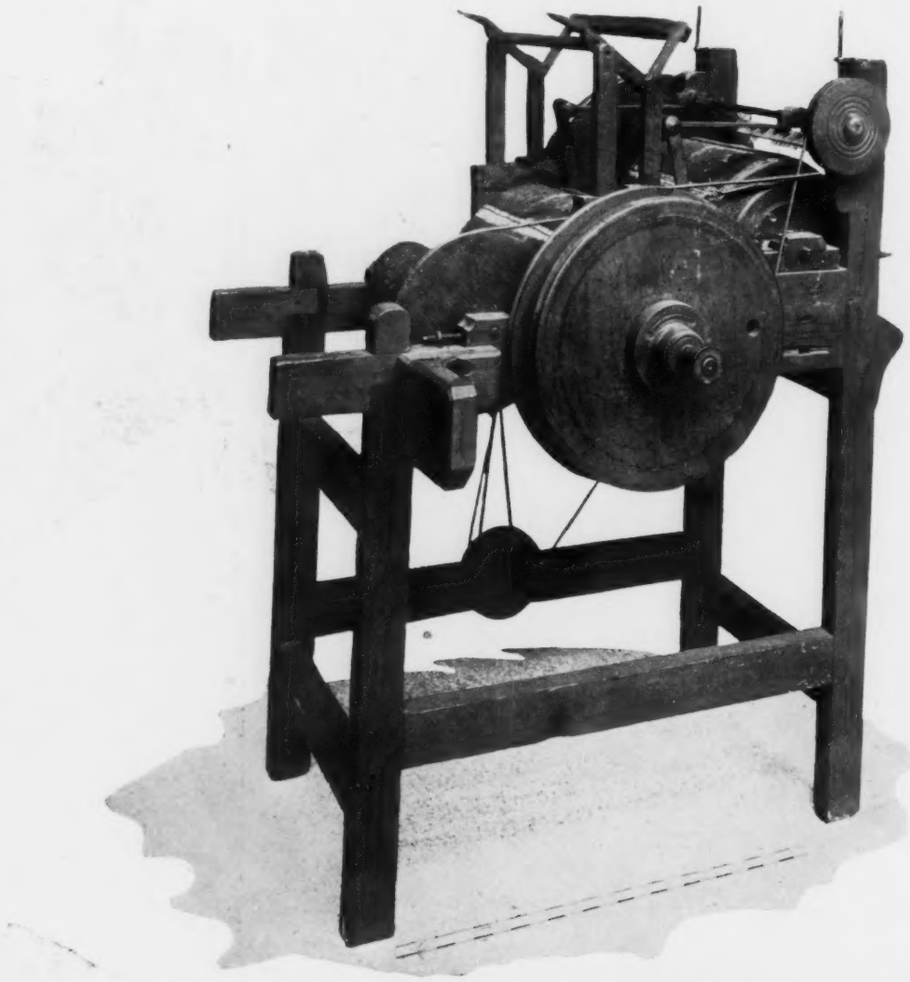
Pictorial History of Textile Machinery

By Prof. Chas. E. Mullin, D.Sc.
Clemson College Textile School,
Clemson College, S. C.

Part I.

(Editor's Note: This is the first of a series of features in which illustrations of the earlier models of regular textile machinery, together with brief descriptions, will be presented. The photographs and information were secured by Dr. Mullin on a recent trip to Europe. It is felt that these interesting photographs of old machinery will be suitable for filing or framing by the reader.)



Arkwright's Carding Engine

THIS MACHINE, made by Sir Richard Arkwright about the year 1775, is very similar to the cylindrical carding engine invented and constructed by Daniel Bourn, of Leominster, in 1748. The object of the machine is to remove from the cotton any fragments of leaves, seeds, etc., and also to straighten out the fibres by a combing action. This is accomplished by small wire teeth fixed in leather strips upon three cylinders. The cylinders are arranged horizontally with their axes parallel, and by bands are rotated at different speeds.

The cotton, having been previously ginned and beaten, was fed on by hand to the small cylinder, which would now be called the licker-in. Its wire teeth, which are bent or set towards the direction of motion, lay hold of the fibres of cotton and carry them downward and round to the second or main cylinder. This moves in the same direction at the line of contact, and also has its teeth set in the direction of motion, but its surface velocity is about 80 times that of the licker-in, and this greater speed causes its teeth to take the cotton from the first cylinder, but at the same time, by a combing action, somewhat to straighten the fibres. The third, or doffer cylinder, has the same direction of motion at the line of contact as the main cylinder, but only one-tenth the surface velocity, and as its teeth are set in the opposite direction to that in which it moves, it takes the cotton from the teeth of the main cylinder.

A reciprocating comb, which receives its motion from a crank on the axis of one of the pulleys, takes the carded cotton from the doffer cylinder and delivers it in strips. This comb was invented by James Hargreaves in 1773.

which he says "the ends run slack until the bobbin is about half full, and then run tight for the rest of the doff."

This trouble is not an unusual one, and the remedy is not hard to find.

First, I asume when he says that the ends "run slack" he means that the tension is just right or as he would like to have it. Then when the bobbin is about half-full the ends "run tight," the tension being *not* just as he would like to have it. I presume also that he has tried changing the rack or lay gears.

Second, if he has tried all of the changes that should overcome the trouble, how about lagging up the bottom cone from the point where the ends begin to get tight to the end of the cone? Begin 27 inches from the large end of the bottom cone and cover with strips of 4.00 or 5.00-yard cloth. After covering with one thickness begin three inches from the starting point, or 24 inches from the large end, and cover with another thickness, then repeat by moving back three inches each time, until the cone is fully covered. The numbr of thicknesses the last three inches will be nine.

Has you contributor ever tried this remedy? If not, I hope he will try it and let us know the results. I would also like to know if he has the same kind of intermediates and speeders, and if he has the same trouble on these.

You will notice that I have not answered the question as to why the ends run slack and then tight, but have only suggested a remedy. If he will try the remedy suggested, I think he will have no trouble in determining the cause.

I am assuming that the ends begin to run tight about 27 inches from the large end of the bottom cone. I have given the figure of 27 inches as that is where we begin to cover our cones. If the figures are different in his case, then he can begin where the ends begin to run tight, disregarding the figures I have given.

M. S. (S. C.)

EDITOR COTTON:

On page 45 of the November issue, "V. T." has a fly frame problem as follows: "Why do the ends on a Saco-Lowell slubber run slack until the bobbin is about half full, and then run tight for the rest of the set?" The slubber making a .70-hank roving and putting seven wraps per inch on the bobbin.

In order to get the proper wraps or coils to the inch, the following rule is the one adopted by most builders: 1.00-hank or below, multiply 7.5 by the square root of the hank to get the laps or wraps per inch. In this case we have .70-hank roving. The square root of .70 is .837, so .837 $\times$ 7.5 equals 6.28 laps to the inch.

However, the trouble is not in the number of laps to the inch, although in my judgment seven laps to the inch is slightly in excess of the rule. However, let us consider the first reason for the trouble.

The bearing on the small end of the bottom cone may be worn V-shaped on the top, so that when the cone belt is at that point nearest the bearing at the start of the set, that end of the bottom cone being lightest, the cone belt may raise the cone to such an extent as to cause friction and in turn lagging of the

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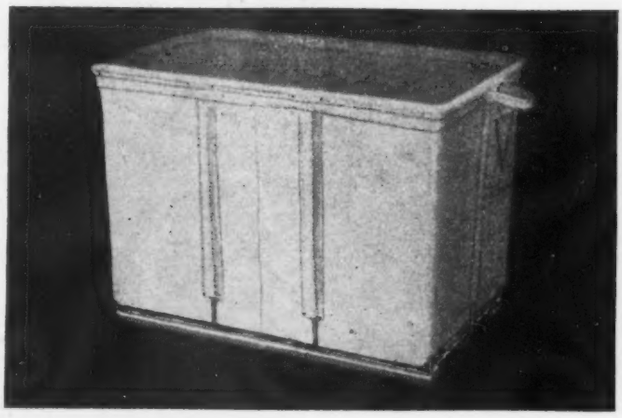

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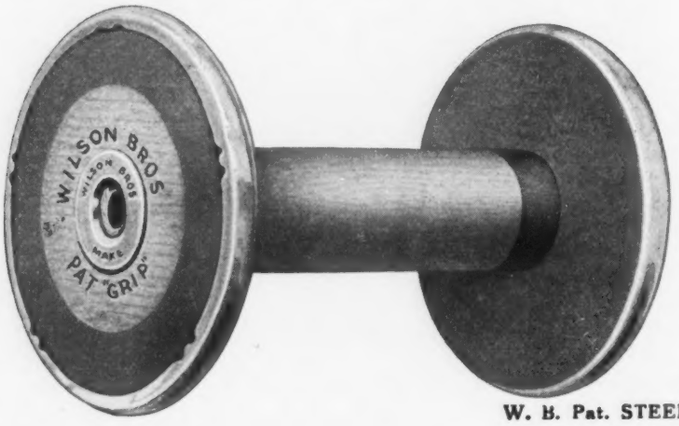

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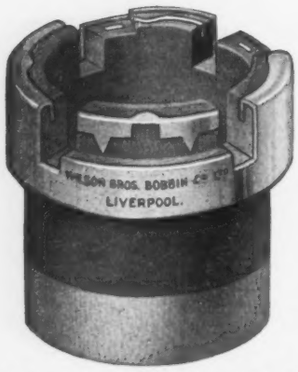

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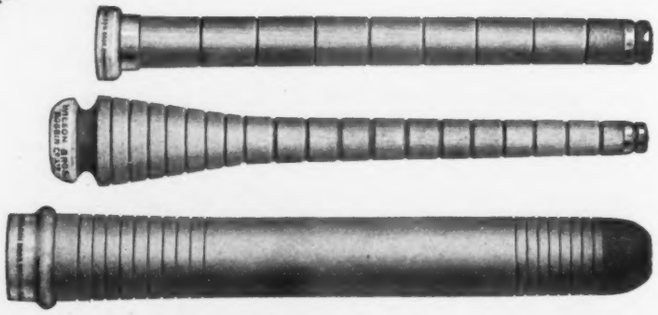

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bottom cone, thus causing a slack tension, a condition that may continue to exist until the belt is moved laterally to the center working area of both cones. Three things may happen at this point. The bottom cone may tip slightly and cause the cone shaft to leave the V-shaped part, and instead rest on the lower and more enlarged part of this bearing. Owing to a change of ratio of the cones (about the same diameter at this point) the cone belt has a much better grip on the bottom cone, and, of course, there is less slippage, which of course would account for the difference in the tension from the beginning to this point.

Or, the trouble may be due to one or both of the bevel gears being worn. When a bevel gear in the compound is worn, it will bind and offer a great deal of resistance to the cone belt. When a bobbin-lead fly frame is in order, the cone belt will slip at times at the start of the set, but very seldom after the set is over one-fourth full.

So, "V. T." should see that the bevel gears in the compound are not worn. If they are found to be worn, they should be changed immediately, for this may be the trouble.

The cones of a cotton fly frame are its most essential features, as upon them depends the perfect winding of the roving on the bobbin. The more accurate their outlines the more perfect the winding, and the more perfect the winding, the more perfect the roving that is produced. The cause of the trouble may be due to a change of flyers without changing the cones, or changing the cones without changing the flyers. The relationship between the cones and flyers will affect the tension on roving frames.

So, if "V. T." made no changes in either cones or flyers, then the trouble may be in the twin gears being set too deep, or the lifting shaft binding slightly, causing a dwell. Many fixers place a washer on the end of the small shaft carrying the twin gears, this is done so as to cause the small bevel gear on the opposite end of this small shaft to mesh deeper with the lifting shaft carrier gears, which will also cause friction and a slight dwell, enough to cause a slack tension.

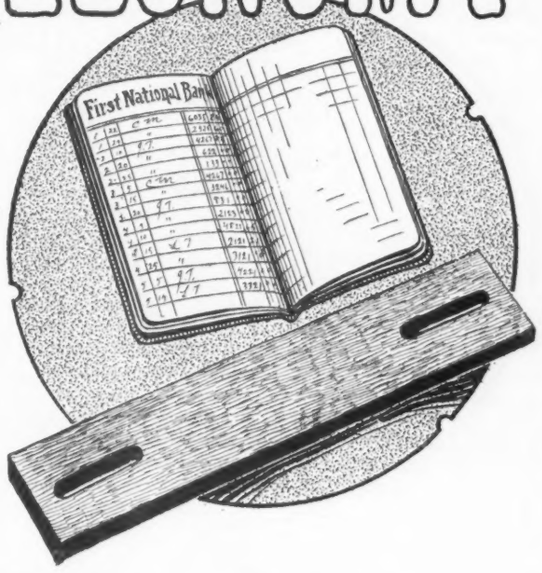
Some may argue that if the trouble is in the twin gears or shafting, carriage or compound, why are the ends slack only at the first half of the set? For the reason already stated: the resistance is overcome by the change in ratio of the cones.

WASH (R. I.)

U S Bobbin and Shuttle Company Moves Headquarters to Manchester, N. H.

To effect a more complete centralization of manufacturing, sales and distribution, the U S Bobbin and Shuttle Company has moved its executive and sales offices from Providence, R. I., to Manchester, N. H., where the general offices of the eastern division of the company have also been installed. One of the main manufacturing plants of the company is located at Manchester; and Goffstown, N. H., where the U S bobbin plant is located is but eight miles from the new executive and sales department headquarters at Manchester. Lawrence and Lowell, Mass., where the U S bobbin and spool departments are located are likewise brought into closer contact with the executive and sales unit. This action follows the recently announced merger of the Jordan Manufacturing Company with the U S Bobbin and Shuttle Company.

ECONOMY



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"Hank" Discusses Thick and Thin Places.

EDITOR COTTON:

You may feel that I am already taking up enough space in COTTON'S columns with "Observations of Hank G. Spindle," which you are kind enough to publish, but I am writing this letter to be published in the "HOW OTHER MEN MANAGE" department, because I believe it will interest some of your readers.

The reason I am writing it is that since you put my name and face before the textile reading public in the "Observations" already mentioned, I have received quite a number of interesting letters from different readers, some of them requesting my opinion on different mill problems. Some of these I can answer, and some of them I cannot answer, but one came in the other day, which I believe will be of interest to other readers, and I therefore am sending it to you in this letter along with my reply so that you can publish it if you so desire.

This man said, "We are having trouble on our slubbers with thick and thin places coming through. They come in spaces about two inches long. There may be other processes where this is happening also, but it is noted only on the slubber. It may be that it is on the drawing or some other place also. I have talked with several good mill men concerning this, but have found no one who could give me much light on it. But there is one thing I do know, there is something not right somewhere between the picker room and the slubber. This is carded yarn, nothing is combed, and our standard length staple will run about one-inch."

Before giving my reply, it is necessary to point out that it is not stated in this question what kind of drawing rolls are used at this plant. Often metallic rolls will cause cutting, and this will produce thick and thin places. Furthermore, not being acquainted with the conditions at this mill, a general answer of what in my judgment would cause thick and thin places will have to suffice. After reading these, if any of your subscribers have any comment to make, or any additions to make, I should be pleased to see their comments in the "HOW OTHER MEN MANAGE" department.

I told this man that among the causes of thick and thin places would be the following:

The trumpets on the cards and drawing may be too large—that is the hole through which the sliver passes —preventing the production of nice smooth sliver.

Back lash in the gearing of the drawing and on the slubbers might cause this trouble.

The weights on the drawing might be resting lightly on the bar directly under them. The springing of the hooks that support the weights could cause the weights to rest lightly and prevent the proper drafting of the sliver.

Broken gearing on drawings caused this trouble in one instance that I know about.

Among other things that might cause it are: flutes filled or badly worn on metallic rolls; bad leather rolls on drawing; worn necks of steel rolls or top rolls; too close or too wide roll settings.

If a very heavy sliver is being used on the slubbers, and the draft is very long, the weights on the slubber

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At the beginning of the New Year, we are proud as we look back and view our past;—not in the spirit of boasting, but rather that of serving. The road has not always been smooth, for one of the most difficult things to do, is to help others help themselves. Just why you can sell "gold bricks" when you can not sell gold dollars, is one of the idiosyncrasies of human nature that is as perplexing to understand as it is to explain.

At this time of general retrospection; of mental stock-taking of all industries—does the progress of your company show as much growth as you had hoped for and expected? Or are you barely holding your own, with each year's profits just about the same as last?

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might not be heavy enough. This man did not give his roll settings, but my idea is that if the sliver is pretty heavy, the rolls should be slightly wider apart than would be necessary with a lighter sliver.

If solid leather covered rolls are used as top rolls, lack of oil might cause this trouble. Your readers know that of course, but the character of oil used makes a difference.

If solid rolls are being used, ball bearing rolls might solve the problem.

This might not seem like a very definite answer, but I think your readers will realize how difficult it would be to specify any particular thing under the circumstances. As stated, I should be delighted to have any of your readers discuss this subject further in the columns of your discussion department.

HANK G. SPINDLE.

Three Processes of Roving Vs. Four.

Exception taken to Marshall Dilling's statement that three processes of roving are more economical than four processes. What do you think?

EDITOR COTTON:

In the October issue of COTTON there appeared an article by L. R. Gilbert entitled, "Manufacturing Progress Reflected In Arkwright Tests".

Although I am not of the Southland, I am greatly interested in these Arkwright tests, believing them to be of value to every member of the entire cotton manufacturing industry, regardless of where they may be located.

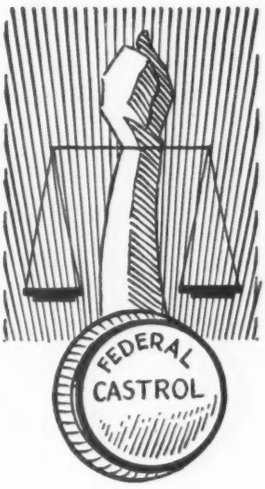
It is my intention to pass comment on one test, which is, to say the least, open to question. I refer to Test No. 4, by Mr. Marshall Dilling, superintendent of the A. M. Smyre Mfg. Co., of Gastonia, N. C., who undoubtedly has had much experience in planning the different organizations for different numbers of yarn. However, I would like to call his attention to some points which he may have overlooked.

His Arkwright Test No. 4 shows the difference in spinning 60s combed yarn, from 1⅛-inch cotton, with three and four processes of roving. While he has a good organization in each case, I do not agree with him when he says, "Not only does this test show an advantage in spinning 60s yarn from fine roving instead of jack roving *but is more economical as it eliminates one process of roving.*"

I intend to show that the situation is just the opposite, and that it is cheaper to use four processes, because of the greater production of each machine. I shall be forced to go into detail to prove my statement. Using Mr. Dilling's drafts as far as possible, I shall be obliged to supply the ones which he does not give.

The foregoing calculations may require a little explanation for anyone unaccustomed to this branch of the industry, so I will briefly explain (at the same time invite any comment on the subject) the system of finding costs.

In finding production on pickers, cards, combers and drawings, the constant is multiplied by the speed of the delivery roll times the weight per yard, and on roving and spinning, the production is figured by di-



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Organization Using THREE Processes of Roving.

Machine	Weight	Prod. Const. for 1 Hr.	Speed	Twist Mult.
Picker	12 oz.	2.65	6 r.p.m.	
Card	50 grs.	.0193	8 r.p.m.	
Comber	42 grs.	.0016	120 n.p.m.	
Drawing	42 grs.	.00082	400 r.p.m.	
Slubber	.88 hk.	1.04	700 r.p.m.	1.0
Inter.	2.50 hk.	1.686	1000 r.p.m.	1.1
Speeders	10.53 hk.	2.14	1200 r.p.m.	1.2
Spinning	60s	16.6	9000 r.p.m.	3.5

Production Per Hour, Using Three Processes of Roving.

Picker ..... $2.65 \times 6 \times 12 = 190.8$ lbs.

Card ..... $.0193 \times 8 \times 50 = 7.72$ lbs.

Comber ..... $.0016 \times 120 \times 42 = 8.06$ lbs.

Drawing .... $.00082 \times 400 \times 42 = 13.77$ lbs.

Slubber ..... $\sqrt{\frac{.88}{1.04}} = .93 \times 1 = .93$ T.P.I.;

$\frac{.93 \times .88}{1.27 \times 1.04} = 1.27$ lbs.

Inter. ..... $\sqrt{\frac{2.50}{1.686}} = 1.58 \times 1.1 = 1.738$ T.P.I.;

$\frac{1.738 \times 2.50}{.388 \times 11.2} = .388$ lbs.

Speeders .... $\sqrt{\frac{10.53}{2.14}} = 3.24 \times 1.2 = 3.888$ T.P.I.;

$\frac{3.88 \times 10.53}{3.888 \times 40.8} = .052$ lbs.

Spinning .... $\sqrt{\frac{60}{16.6}} = 7.74 \times 3.5 = 27$ T.P.I.;

$\frac{27 \times 60}{27 \times 60} = .0102$ lbs.

Organization Using FOUR Processes of Roving.

Machine	Weight	Prod. Const. for 1 Hr.	Speed	Twist Mult.
Picker	12 oz.	2.65	6 r.p.m.	
Card	50 grs.	.0193	8 r.p.m.	
Comber	46 grs.	.0016	120 n.p.m.	
Drawing	46 grs.	.00082	400 r.p.m.	
Slubber	.60 hk.	1.04	700 r.p.m.	1.0
Inter.	1.50 hk.	1.686	1000 r.p.m.	1.0
Speeders	4.00 hk.	2.14	1200 r.p.m.	1.1
Jacks	12.00 hk.	2.5	1400 r.p.m.	1.2
Spinning	60s	16.6	9000 r.p.m.	3.5

Production per Hour, Using Four Processes of Roving.

Picker ..... $2.65 \times 6 \times 12 = 190.8$ lbs.

Card ..... $.0193 \times 8 \times 50 = 7.72$ lbs.

Comber ..... $.0016 \times 120 \times 46 = 8.83$ lbs.

Drawing .... $.00082 \times 400 \times 46 = 15.08$ lbs.

Slubber ..... $\sqrt{\frac{.60}{1.04}} = .774 \times 1 = .774$ T.P.I.;

$\frac{.774 \times .60}{2.24 \times 1.04} = 2.24$ lbs.

Inter. ..... $\sqrt{\frac{1.50}{1.686}} = 1.23 \times 1 = 1.23$ T.P.I.;

$\frac{1.23 \times 1.50}{.913 \times 2.02} = .913$ lbs.

Speeders .... $\sqrt{\frac{4}{2.14}} = 2 \times 1.1 = 2.2$ T.P.I.;

$\frac{2.2 \times 4}{.243 \times 36.2} = .243$ lbs.

Jacks ..... $\sqrt{\frac{12}{2.5}} = 3.46 \times 1.2 = 4.15$ T.P.I.;

$\frac{4.15 \times 12}{.0502 \times 992} = .0502$ lbs.

Spinning .... $\sqrt{\frac{60}{16.6}} = 7.74 \times 3.5 = 27$ T.P.I.;

$\frac{27 \times 60}{.0102 \times 4860} = .0102$ lbs.

viding the production constant by the turns per inch times the hanks per pound.

The cost constant is the labor cost per machine per delivery hour. These figures may not agree with any particular mill in 1929, but they were figured from an actual mill payroll and are sufficiently accurate to make my point clear.

The comber sliver was figured to be the same as the drawing sliver, which was obtained from Mr. Dilling's table in the October issue of COTTON.

It will be seen that it is cheaper to use four processes instead of three processes of roving. I might add at this time that by using four processes of roving that we have an extra process of doubling, and, by using shorter drafts, will undoubtedly produce a more even and thereby a stronger yarn.

I hope that this short discussion will bring forth

Comparative Cost.

	Three Processes		Four Processes	
Picker	$\frac{.6262}{190}$	= $.003295	$\frac{.6262}{190}$	= $.003295
Card	$\frac{.04795}{7.72}$	= .006211	$\frac{.04795}{7.72}$	= .006211
Comber	$\frac{.09939}{8.06}$	= .012331	$\frac{.09939}{8.83}$	= .011255
Drawing	$\frac{.0702}{13.77}$	= .005098	$\frac{.0702}{15.08}$	= .004655
Slubber	$\frac{.00566}{1.27}$	= .004456	$\frac{.00566}{2.24}$	= .002526
Inter.	$\frac{.00224}{.388}$	= .005773	$\frac{.00224}{.913}$	= .002475
Speeder	$\frac{.002355}{.052}$	= .045288	$\frac{.002355}{.243}$	= .009691
Jack			$\frac{.001379}{.0502}$	= .027470
Spinning ...	$\frac{.00048}{.0102}$	= .047058	$\frac{.00048}{.0102}$	= .047058
		$.129510		$.114636

$.129510
.114636
$.014874 = Difference;

Increased cost to use three Processes:

$\frac{.014874 \times 100}{.129510} = 11.4\%$

many expressions of opinion, for then many of us will be benefited. I shall be pleased to have the opinions of your readers, especially those who do not agree with me.

CONTRIBUTOR No. 4689.

Comments on Previous Lay-outs for 70s.

EDITOR COTTON:

The writer was greatly interested in the article entitled, "Still Another Organization for 70s", written by "CONTRIBUTOR No. 4568" and appearing in the August issue of COTTON. He also included in his article, for comparison, the lay-out of "CONTRIBUTOR No. 4101", which appeared in the April issue.

Before passing judgment on the two articles, I want to take this opportunity to congratulate "CONTRIBUTOR No. 4568", for in my estimation his lay-out is almost perfect.

For convenience, I am going to include the lay-outs of these two former contributors:

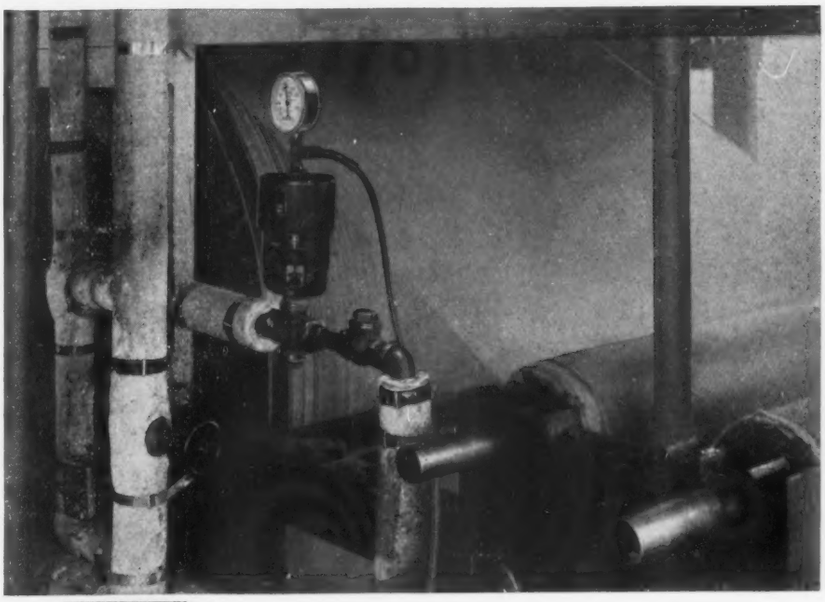
Machine	Contributor No. 4101 Weight or Size	Draft	Contributor No. 4568 Weight or Size	Draft
Picker	10.5 ounce	4.38	10.5 ounces	
Card	33 grain	139.20	43.6 grains	100
Sliver Lap	380 grain	1.74	450 grains	1.93
Ribbon Lap	380 grain	4.00	450 grains	4
Comber	49 grain	51.49	45 grains	50
First drawing ..	55 grain	5.34	45 grains	6
Second drawing .	60 grain	5.50	45 grains	6
Slubber	.50 hank	3.60	.60 hank	3.24
Intermediate ...	1.25 hank	5.00	1.40 hank	4.66
Fly Frame	4.50 hank	7.20	4.00 hank	5.71
Jacks	14.00 hank	6.20	13.00 hank	6.5
Spinning	70	10.00	70	10.77

First, examining the lay-out as given by "CONTRIBUTOR No. 4101". At a glance we find the sheet of picker lap slightly lighter than it should be. This was very ably pointed out by "CONTRIBUTOR No. 4568", who stated that the combination of the light picker lap and long card draft caused the card sliver to be too light and consequently a light ribbon lap for the comber.

I also think that the drawing drafts are much too short and that the slubber hank is too heavy.

Uniformity of Sizing Depends Greatly Upon Two Things---

POWERS REGULATOR applied to Size Box



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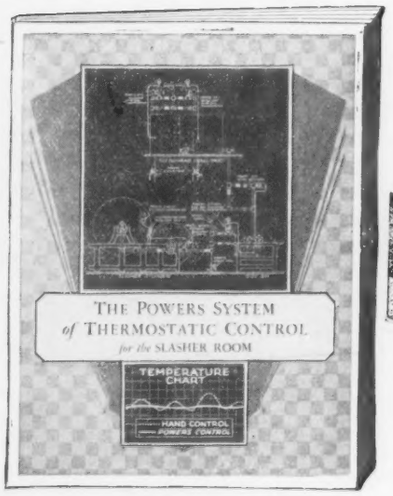
The steam that heats the size must also keep it in a state of constant agitation. This means that SOME steam should flow to the size box at all times, but not enough to OVER-HEAT or cause the size to be violently thrown on the warp or from the box.

The temperature of the size is affected by changes in:—Speed or weight of warp—Room temperature—Steam pressure—

Powers size box regulator maintains a constant agitation and CONTROLS and INDICATES the temperature of the size.

RESULTS—Uniform sizing.



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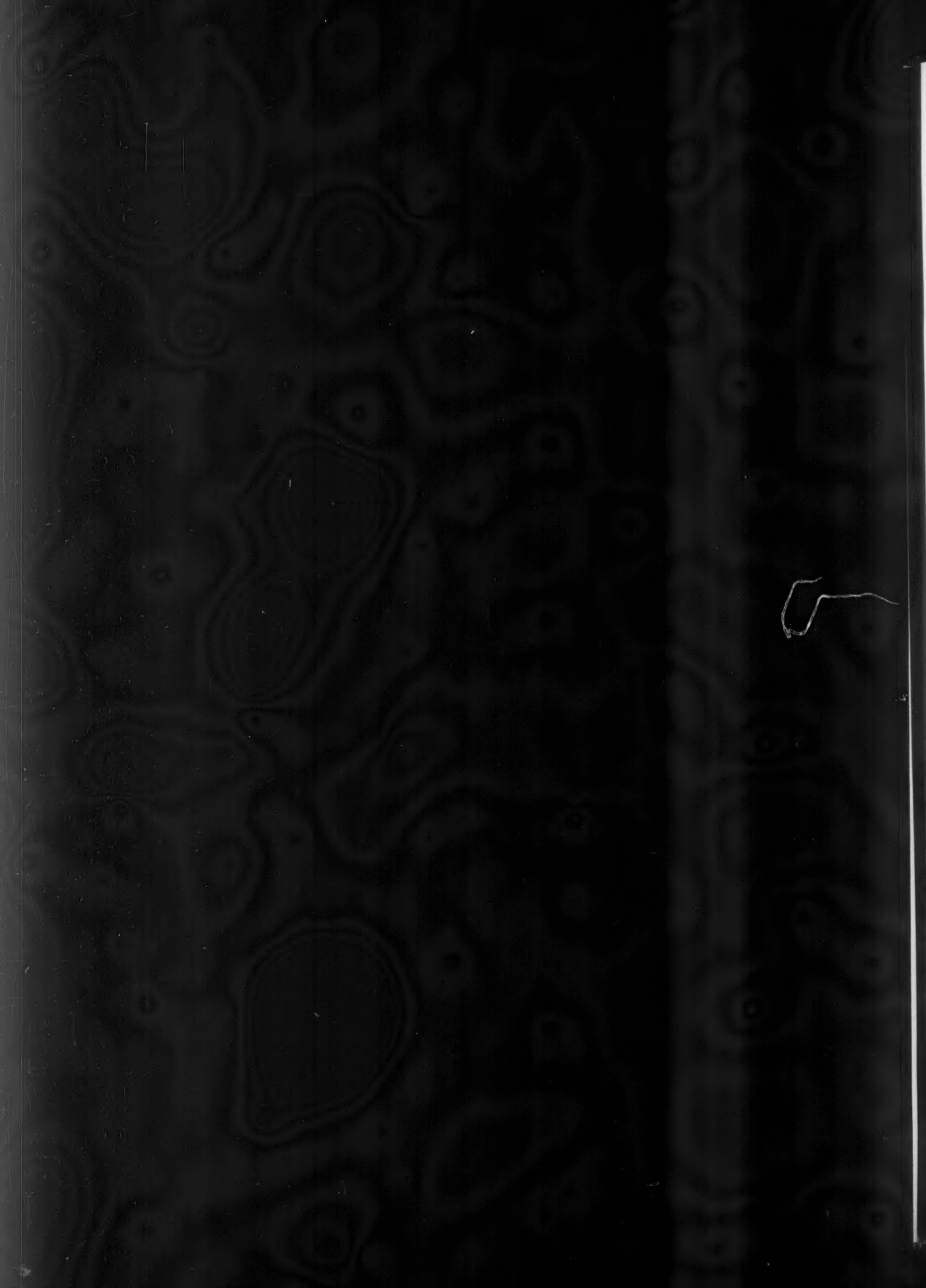

I am sure that any carder who understands the art of drafting will agree that, with a 1.25 hank roving on the intermediates and a 7.20 draft on the fine frame, a condition is obtained that should never exist.

It seems to me that in such a controversy each writer should give his reason for each statement. For instance, "CONTRIBUTOR No. 4568" is at sea as to why "CONTRIBUTOR No. 4101" uses 7.20 draft on the fine frame, which is longer than the draft on the jack. Such reasoning is like a man setting his house on fire to see if he can put it out, as the long draft on the fine frame increases the frictional contact between the front rolls and the short draft is adopted on the jacks in an effort to overcome the evil produced by the long draft.

No doubt some of the readers remember how "WASH" fought the long-draft-on-card boys a few years ago. Very little is now heard from them, and why? Simply because these boys have found that the longer a fiber is held at the feed plate, the weaker the yarn will be.

Reducing the speed of the licker-in is not the proper remedy, as the ratio of the surface velocity of the cylinder and licker-in, adopted by the machine builders and found to be the best after years of testing, is destroyed.

Next, considering the sheet of lap. The lighter the sheet of lap the better. However, in making a light sheet of lap one must consider the air currents in the pickers, which vary from day to day. In other words, one day it is possible to make a perfect 9-ounce lap and the next day a close examination of the sheet will reveal the fact that, instead of being a perfect lap as was made on the preceding day, the lap is full of thin places.

I believe that the aforementioned is what "CONTRIBUTOR No. 4568" had in mind when he said that the picker lap of "CONTRIBUTOR No. 4101" was on the light side. Therefore, I believe that an 11-ounce lap would be better.

Passing now to the drawing frame—why is this machine called a drawing frame? The answer is because on these frames the greatest opportunity for doubling is afforded, and, of course, the higher the number of doublings, the longer must be the draft. I believe that six is a draft that should be adopted for all drawing frames.

As will be seen by referring to the lay-out of "CONTRIBUTOR No. 4101," he begins with a 33-grain sliver at the card and, through faulty drafts, ends with a finished drawing sliver of 60 grains. To any practical carder, when 70s is to be the finished yarn, this must seem terrible.

Now considering the lay-out of "CONTRIBUTOR No. 4568". He proves beyond a doubt that he has mastered the art of drafting. In contrast to the method adopted by "CONTRIBUTOR No. 4101", he follows the law of attenuation, which is a gradual process of thinning out and not a process of making thin, then thick, then thin again, as was the method adopted by "CONTRIBUTOR No. 4101".

The difference between the two lay-outs can be seen at a glance by any expert. In the first case, "CONTRIBUTOR No. 4101" removes work from the machines that should do the most work and forces this work on the machines that should do the lesser amount of work.

With the short draft on the card, whereby the fibers are not robbed of their waxy walls forming the carding sliver, followed by the gradual drafts as given by "CONTRIBUTOR No. 4568", I fail to see where anyone could improve on such a lay-out.

WASH (R. I.)

"Figuring Cord Fabric Details."

Some different ideas on the matter discussed under this heading in the November issue, with further details given.

EDITOR COTTON:

On page 36 of the November issue of COTTON you published an inquiry under the heading "Figuring Cord Fabric Details." Your inquirer wanted to know a method of determining the warp crimp, ends per dent, reed, width in reed and shrinkage, in the following cord fabric construction:

Cotton	Carded Egyptian 1 3/16-inch staple
Weight per square yard	13.2 ounces
Ends per inch	23
Width	56 inches
Picks per inch	5
Warp yarn number	22.75s/5/3
Filling yarn number	22.75s/1
Warp ply twist	19 turns per inch
Warp cable twist	8.5 turns per inch
Gauge of cord	.035
Filling crimp	16.6 per cent.

The answer which was published there gave information on each of the points requested, some of which I will take up in detail, but before doing so, wish to say that, it appears to me that, inasmuch as the data given includes the construction of both the cable yarn and the fabric with the square yard weight, your correspondent must have been inquiring for the crimp for this particular construction rather than a theoretical crimp as given in the reply. In this reply, the following answer was given under the head of *warp crimp*:

"Instead of determining the warp crimp in cord fabric by a mathematical formula, proceed as follows: Weave a piece of fabric the proper width with the correct pick, about 18 inches long, cut off of loom and lay flat on table. Then measure a distance of 10 inches on the fabric and mark with a pencil. Cut along the marks with a pair of scissors and remove the warp ends from the fabric. The warp ends are then pulled straight and measured. The difference between the length (10 inches) in the fabric and the length after being straightened, will give the percentage of crimp. If a mill should be starting to manufacture cord fabric without previous experience, and wished to determine the proper length of warp for a given length of fabric, we would assume the crimp to be 10 per cent, and weave one roll, when the contraction in weaving could be determined."

Our own approach to this problem would be as follows: Divide the given single yarn size by the number of plies, and the resultant answer would give the single equivalent of the cable yarn without allowing for twist contraction. On a cord made up to the given

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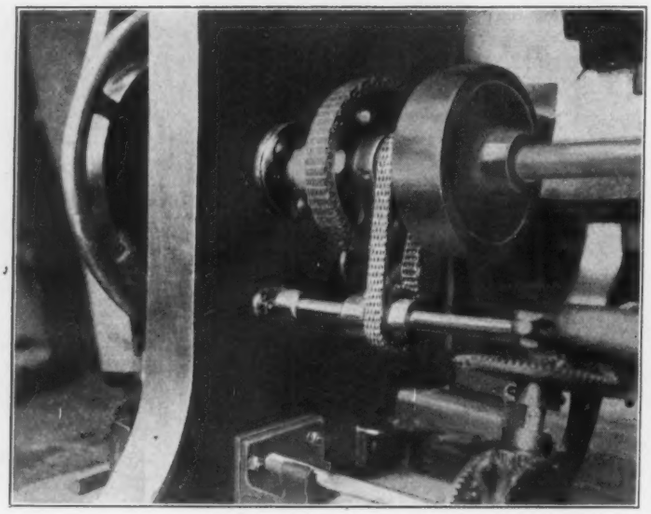

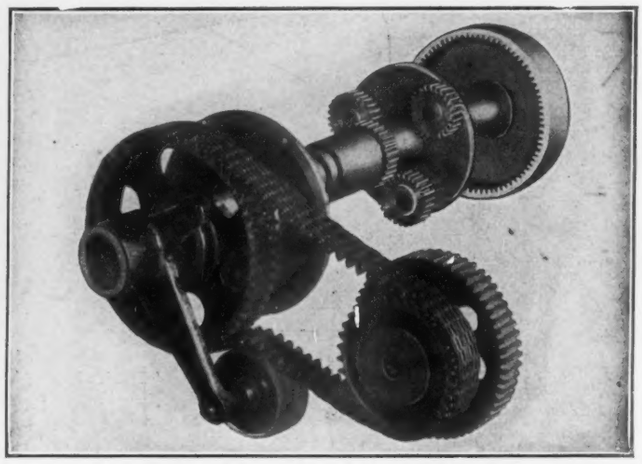

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construction there should be a twist contraction of about 18 per cent. Subtract 18 per cent from the indicated yarn size as given above and the answer will give the actual yarn size. 22.75 divided by 15 equals 1.517. $1.517 \times .82 = 1.244$, cable size.

Your correspondent would of course be able to make actual sizes on his cable cord to check against this theoretical yarn size, as there are many factors that could be introduced that would vary the resultant size.

From the data given, it is easily determined that the filling will weigh .17 ounces per square yard. Subtracting this amount from the given square yard weight of the woven fabric gives a weight of 13.03 ounces of cord in a square yard. A fabric made up from a cable cord sizing 1.244 having 23 ends per inch would give us a square yard weight of 12.678 ounces without any allowance for warp crimp. Dividing this weight into the actual weight of the cord present in a square yard of the woven fabric, that is, 13.03, will give us 1.028. Multiplying this by 100 in order to express the difference in terms of percentage will give 102.8 per cent. Therefore, there is a crimp of 2.8 per cent. It should be noticed, however, that this percentage is crimp and not weaving take-up. If your inquirer wishes to convert this to terms of take-up he should divide 2.8 by 102.8, which would give him .272. In other words, to produce 100 yards of woven fabric would require 102.72 yards of cord yarn.

This percentage of crimp meets all of the requirements of the construction given. However, it would probably be relevant to state that in fabric made up to the given construction, and from the cable yarn as specified, the square yard weight would be somewhat higher than that specified. A five-pick fabric ordinarily would show a crimp of about four per cent, so that the correct theoretical square yard weight would be 13.35 ounces.

Commenting upon the remarks quoted under the heading of *warp crimp* in the November article, I would point out that the method given for determining the crimp is of little value. In the first place, notice that the 18-inch woven sample to be cut off is first laid flat on the table and then a distance of 10 inches marked on the fabric. There is nothing said about any tension applied. The only thing of which we have any assurance is that the tension would be radically different from that existing in the finished fabric as found in the roll. In addition to this, we note that the warp ends are pulled straight and then measured. Again nothing is said about tension, and when one considers the high elongation properties of a tire cord, the probable inaccuracies resulting from using this method are at once apparent.

In order to adapt the method as outlined in your article to give reasonably accurate results, it would be necessary to measure the piece of cord to be tested while under a tension that approximated the tension of the cord in the finished roll, and then after marking the sample, the length of the straight cord must be measured under a definite and uniform tension. This tension should be about 2½ ounces. This weight of 2½ ounces is that recommended by Committee D-13 of the American Society for Testing Materials, as the

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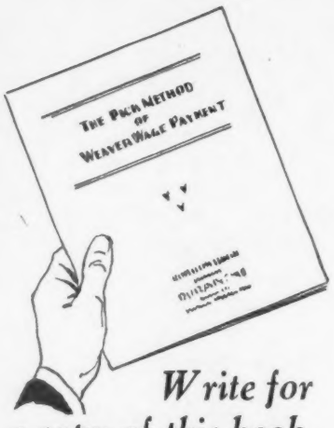

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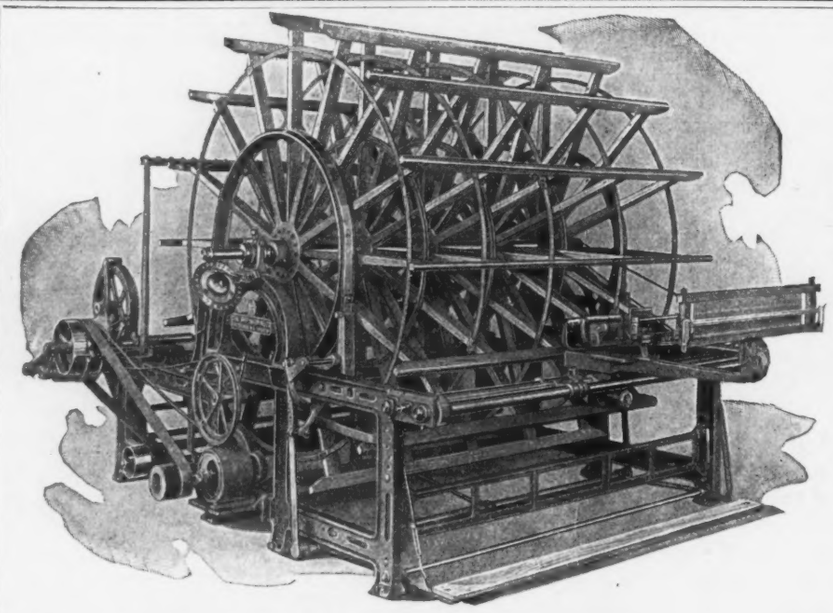

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proper tension to be applied when testing tire cord for twist, and, so I assume that it would be the proper tension to use for the crimp test.

CONTRIBUTOR No. 4688.

College Student or Practical Man?

The views of all readers are cordially invited on this interesting subject. What is your experience and opinion?

EDITOR COTTON:

I have been an interested reader of COTTON for a number of years and during the last two or three years I have read a lot of articles concerning the man to select for the job—the college student or the practical man? In reading these articles I have found the majority of contributors sold on the practical man and that some failed to give due consideration to both sides of the question.

Now to be a successful overseer or superintendent it is necessary to have a lot of experience and some education. If a college student, with his three or four years of college training and no practical experience, were placed in the position of overseer or superintendent, he would be lost. However, I believe that most college men realize this and would not undertake to fill such positions without practical experience. I do believe though, that the college student with three or four years of training and five years of practical experience would be worth more to any mill than a man with ten years of practical experience and no college training. If this is not true, then it would be a foolish idea for any young man to spend his money and time obtaining a college education.

Here is the point, we should not and we must not leave an impression on the young men of today that it is not an advantage to take college training in textiles or any other subject wherein he desires to become an expert.

Now, as to practical experience, we all know that it is not necessary to have college training to become a successful overseer or superintendent, yet it would be a great advantage. Theory is something to be proved. Experience is something lived through or something we come to know by personal trial. Therefore, there is no substitute for experience. When we speak of a practical man we mean a man skilled by practice. Some of the best superintendents we have today are men with many years of practical experience and a very limited education. Yet they are men who know what to do at the right time, for through their many years of experience they have become experts.

As to whom to choose in case of promotion would not be a difficult question for me to decide. The practical man should certainly have the first chance, for he has been a hard loyal worker, fully capable of running his job, or else he would not even be considered in line for promotion. Such a man deserves an expression of appreciation for his loyal service, and, provided he is capable, promotion would be the best means of expressing it. When you do this, you show him that you have confidence in him and he sets out with a new determination to be worth more to the company, and in most cases he will be. Such a promotion will

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"OLD TIMER" is great, would also like to hear more from "WASH."

CONTRIBUTOR NO. 4673.

More About Preventing Fly Waste.

EDITOR COTTON:

"B. M. (MASS.)" asks some questions with reference to fly waste in carding. He wanted to know what causes an excess amount of waste to fly out between the cylinder and the side arch of a card. Also, he asked, what causes too large an amount of fly waste and droppings through the mote knives on a card, the waste dropping down in little bunches?

First, I would suggest that a man having this trouble make certain that the card is leveled and lined properly. Then he should be sure that all four arches are an even distance from the cylinder. This can be done very easily by inserting a four-leaf gauge between the arches and the cylinder to be sure that the space is evenly divided.

I would also suggest looking over the cylinder box bearing, to determine whether this needs adjusting, after it has been made certain that the card is leveled and lined. In some cases, it may be necessary to move the brass main cylinder box bearing one way or the other. By using a five-gauge, instead of a full gauge, putting the five down between the shoulder of the shaft and the bearing.

The same kind of care should be taken in setting the screens, and in dividing the outside flange on the screen, having an equal amount of clearance on both sides, back and front.

Then I would set the screen to a 17 at the licker-in, to a full gauge at the bottom of the cylinder, and to a 3/16-inch at the top of the first section at the doffer. This will give a gradual taper and also should stop the card from throwing out stock. When this trouble occurs, usually there is a draft coming out with the stock, and in my opinion there must be something off too far, so that the card is taking in draft somewhere. When a draft is taken in it must come out somewhere, and when it comes out on the side it brings good stock with it.

Now for the mote knives. The same subscriber wanted to know what causes fly waste to drop down in large and small bunches between the mote knives.

This can be avoided by seeing that the licker-in is good and sharp, and that the knives are straight. The mote knife brackets should be set so as not to bind the knives, and should have no rough edges, as these will cause the stock to have a tendency to hang on for a while and then drop off.

The angle used in setting the mote knife brackets has a lot to do with this trouble also, and the feed plate could be set too far off, which will cause the trouble, as will uneven feed plates.

I trust this will be of help to your contributor and others interested.

G. S. (S. C.)

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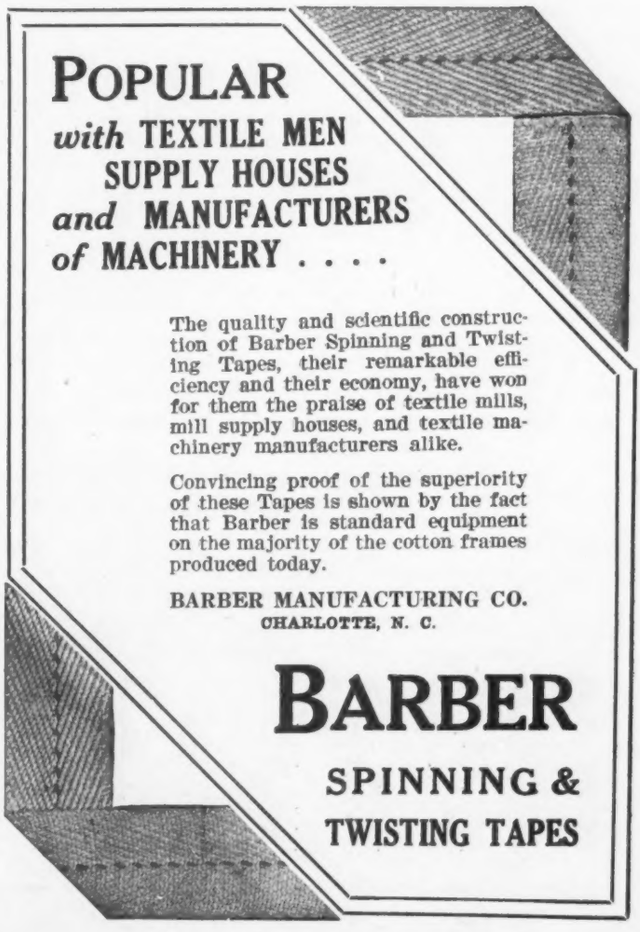
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Relation of Spinning Ring Diameter to Bobbin Diameter for Good Running Work.

THE PROPER BOBBIN DIAMETER to be used with the different sizes of rings has always been a much discussed subject. The smaller the diameter of the bobbin, the more yarn can be wound upon it, but beyond a certain point the running of the work becomes affected. If too large a diameter bobbin is used the work will run much better than on too small a diameter, but the amount of yarn in the package is reduced and loss in production results.

The angle which the yarn makes in passing from the traveler to the bobbin or what is termed angle of yarn pull is one of the important factors in determining the most efficient diameter of the spinning bobbin. Other factors which also enter into the consideration are spindle speeds and grade of cotton being run.

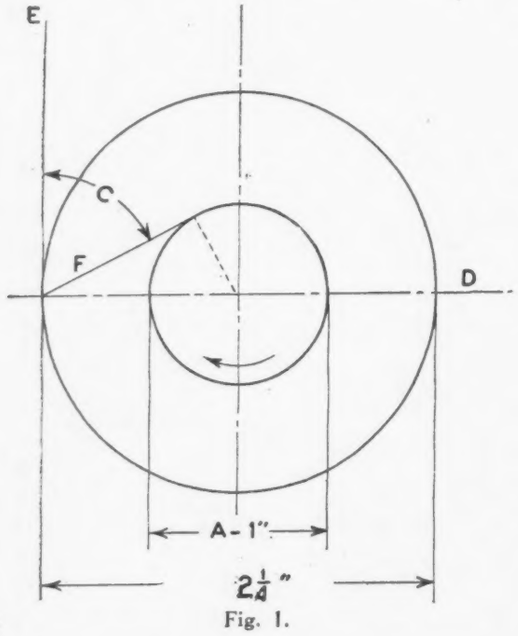


Fig. 1.

We have compiled the accompanying very interesting table which gives a range of bobbin diameters for each size of ring. By means of this table one can easily check the angle of yarn pull for each combination of ring and bobbin diameter. This angle can be determined very easily as shown in Fig. 1. By drawing two concentric circles, one representing the ring diameter *B*, and one the bobbin diameter *A*, a straight line through the center of the circles *D* and a line at right angles to this line and tangent to the circle *E;* line *F* drawn from the point of intersection of the two straight lines tangent to the circle representing the bobbin diameter indicates the yarn passing from traveler to bobbin. The angle *C* or angle of yarn pull can be easily measured with a protractor.

In the following table we have selected what we believe to be the average practice in regard to ring and bobbin diameters:

Size of Ring	Diameter of Bobbin	Equivalent Decimal
1 1/8-inch	½-inch	.500
1 1/4-inch	9/16-inch	.5625
1 3/8-inch	5/8-inch	.625
1 1/2-inch	5/8-inch	.625
1 5/8-inch	3/4-inch	.75
1 3/4-inch	3/4-inch	.75
1 7/8-inch	13/16-inch	.8125
2 -inch	7/8-inch	.875
2 1/8-inch	15/16-inch	.9375
2 1/4-inch	1-inch	1.00
2 3/8-inch	1-inch	1.00
2 1/2-inch	1 1/16-inch	1.062
2 3/4-inch	1 1/8-inch	1.125
3 -inch	1 3/16-inch	1.187

In the table of range of bobbin diameters for ring sizes we have used heavy type to indicate standard practice, and it is interesting to note these fall between 63 degrees and 66 degrees with the exception of the largest ring. It would seem that combinations that give angles from 67 degrees to 69 degrees are on the border line of trouble unless they have exceptionally favorable conditions of stock, twist, or spindle speeds. Combinations which give angles from 60 degrees to 62 degrees, unless conditions are unusually unfavorable, might be changed to improve the yardage in the package and increase the efficiency of the spinning. — *August* 1929 *Issue of "The Saco-Lowell Bulletin."*

RANGE OF BOBBIN DIAMETERS FOR VARIOUS RING SIZES

Ring Diam. / Angle of Yarn Pull	1⅛" Dia. of bob.	1¼" Dia. of bob.	1⅜" Diam. of bob.	1½" Diam. of bob.	1⅝" Diam. of bob.	1¾" Diam. of bob.	1⅞" Diam. of bob.	2" Diam. of bob.	2⅛" Diam. of bob.	2¼" Diam. of bob.	2⅜" Diam. of bob.	2½" Diam. of bob.	2¾" Diam. of bob.	3" Diam. of bob.
60°	.562"	.625"	.687"	.750"	.812"	.875"	.937"	1.000"	1.062"	1.125"	1.187"	1.250"	1.375"	1.500"
61°	.545	.606	.666	.727	.788	.848	.909	.970	1.030	1.091	1.151	1.212	1.333	1.454
62°	.528	.587	.645	.709	.763	.821	.880	.939	.998	1.056	1.115	1.179	1.291	1.408
63°	.511	.567	.624	.681	.737	.794	.851	.908	.965	1.021	1.078	1.135	1.248	1.362
64°	.493	.548	.603	.658	.712	.767	.822	.877	.932	.986	1.041	1.096	1.206	1.315
65°	.475	.528	.581	.634	.687	.739	.798	.845	.898	.951	1.004	1.056	1.162	1.268
66°	.457	.508	.559	.610	.661	.712	.762	.813	.864	.915	.966	1.017	1.118	1.220
67°	.440	.488	.537	.586	.635	.684	.732	.781	.830	.879	.927	.977	1.074	1.172
68°	.421	.468	.515	.562	.608	.655	.702	.749	.796	.843	.880	.936	1.030	1.124
69°	.403	.448	.493	.537	.582	.627	.672	.717	.762	.806	.851	.896	.986	1.075

Dyeing *and* Finishing Rayon

By Noel D. White

THIS ARTICLE contains the result of practical experience by the author in the processing of rayon in the dyehouse. In this article Mr. White covers the practices he has found best in connection with the nitro-cellulose type of rayon; and plans later to carry this discussion on to apply to the other general types of fiber.

Further articles by Mr. White will appear on this and allied subjects in forthcoming issues of COTTON.—THE EDITOR.

SINCE RAYON made its first appearance as a textile fiber it has always been more or less of a problem for the dyers to color it the best posisble way. Owing to its lack of elasticity when in a wet state the aim of the dyers has been to find a way to dye it in the shortest possible time with the least amount of handling in processing it. When dyeing it in skein, the problem is not such a difficult one as when it is dyed in a mixture with some other fiber as when found in hosiery or piece-goods fabrics made up of cotton, wool, linen, silk or other fibers. Here the dyer has, first of all, to find out what kind of rayon he has to deal with, as rayons differ in their affinity for dyestuffs as much and in some cases more than cotton differs in its affinity for dyestuffs intended for silk or wool. One kind of rayon, especially the acetate rayon, has the distinction of having had chemists work for a time to find out and produce a line of dyestuffs that would dye it.

If the manufacturers would learn to consult the dyer when they decide to put into their fabrics a new or different fiber the work of the dyer would be simplified a lot, but, instead of that in most cases, the buyer will listen to some high pressure salesman, buy and put into its goods yarn that may or may not be the proper thing—and then give it to the dyer and let him worry as to how to make a presentable job out of it. This writer has in mind a case when a hosiery manufacturer wanted to put in his line a number knitted with silk, mercerized cotton and rayon. In buying rayon the buyer selected one type, having been convinced that it was the best for his work. The dyer could have told him that another type of rayon had more affinity for cotton dyes than the first and consequently easier to dye good union when dyeing it with mercerized cotton and silk but, he was not consulted. When the goods were sent to him he found it extremely hard to match to a good union and when his goods were finished with a heather and mottled appearance he was told that as a dyer of rayon goods he was not much good. That number of rayon mixed hosiery did not take a good hold in that mill and was discontinued, even when the dyer had found a way to dye it presentable.

At present there are four kinds of rayon that have gained quite an extensive favor in textile manufacture; the Chardonnet or Tubize, a nitro cellulose and the first artificial silk to appear on the market. The Cupra-ammonium, the Viscose and Celanese, each has its own characteristics, every one of them has been greatly improved since they first made their bow to the textile industry and each one has its purpose for which it is best adapted.

Some time ago it was decided that artificial silk was a misnomer and a common name to designate the different artificial fiber would be much more desirable. After many suggestions the word rayon was selected and generally accepted to be applied to all fibers created in the laboratory and spun through the spinnerette.

When rayon made its appearance and the dyers were not yet acquainted with the processes of dyeing the new fibers, many outsiders stepped in the breach and attempted to dye it with more or less success.

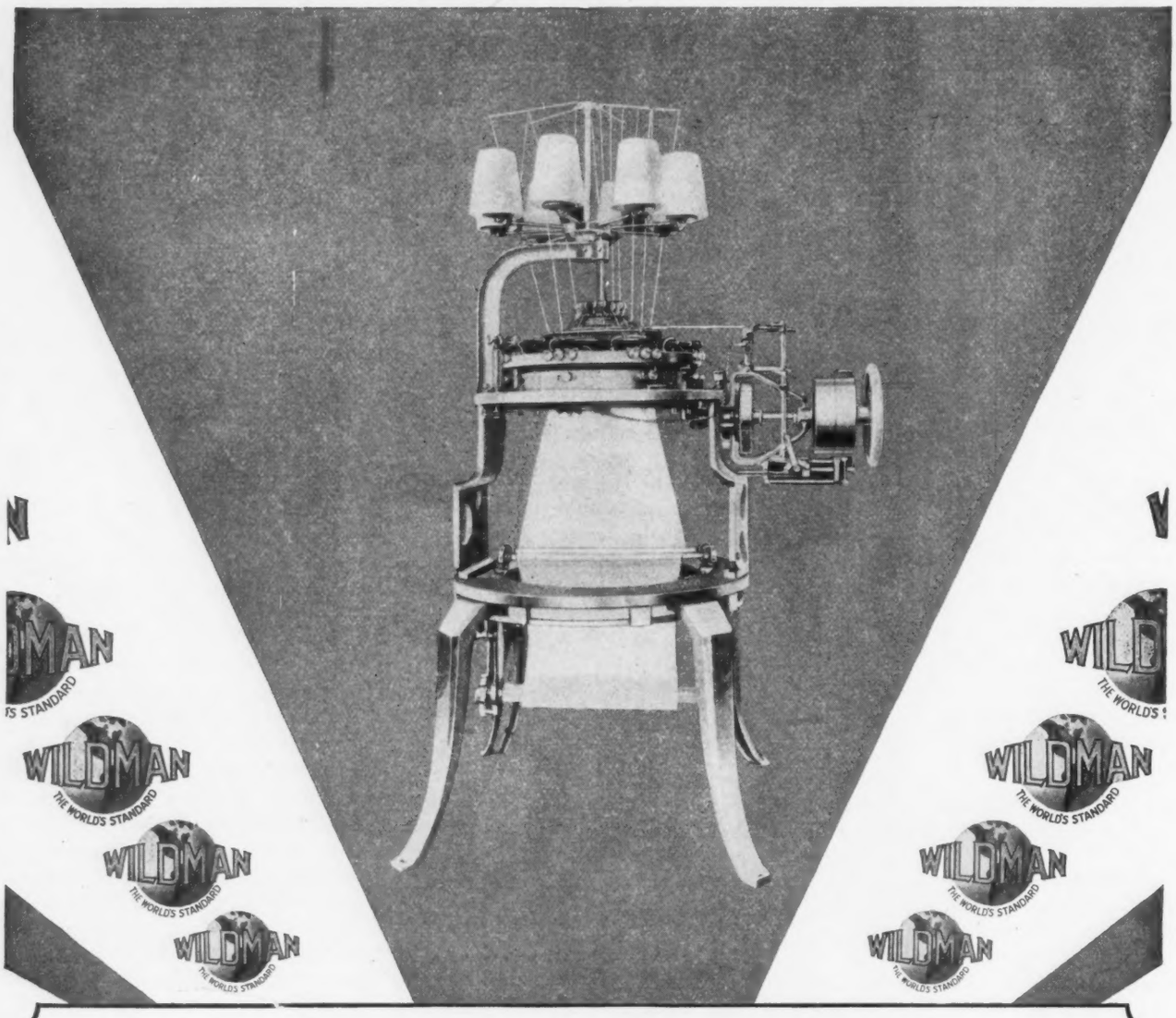
First Dyers of Rayon.

The dyestuff manufacturers were ever ready to help these newcomers with advice, giving formulas, selling dyes and chemicals to any who were willing to tackle the new product. On account of its high luster it was found admirably adapted for embroidery work and for trimming in millinery, braiding and the like. Lots to be dyed were generally small, sometimes only a skein or two to a color and many found a comfortable living starting up a dye house. Some shirtwaist factories even had a dye house of their own set up in a corner of their loft taking up no more than six or eight square feet of space where they had their embroidery silk dyed as needed, a few skeins every day.

At this time a group of silk manufacturers in the New York and New Jersey area combined forces and raised some capital to start a dyehouse for artificial silk. They were having such poor results from the outside dyers, that they decided to engage the best chemists and dyers they could find. They gave them the opportunity to investigate and find a way to get the best results they could in dyeing the new fibers and in a short time they succeeded in supplying not only their mills, but also to serve a large outside trade with well dyed artificial silk.

Soon however, artificial silk became a larger factor in the textile world. Dye houses began to take it as a regular business, thread merchants became interested in it and with few exceptions pot dyers faded out of the picture. The dyer had to accept the new fiber if he was progressive and make the best of it.

Owing to its strength when dry, its beautiful lusters and the many uses it could be put to, it was feared that it would displace the natural silk in time, but even the most ardent admirer and advocate of rayon must admit that the queen of all fibers is far from being out of the running if statistics prove anything.



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READERS who followed Mr. White's previous articles in our Knitting Section will be interested to know that with the accompanying discussion, he resumes his contributions on dyeing and related subjects in these columns.

Later articles will discuss different phases of dyehouse work, with specific relation to rayon. These, we know, will be welcomed as additions to his previous series under the heading of "The A B C of Dyeing."—The Editor.

The Nitro Cellulose Rayon.

The first rayon the writer had occasion to handle and the first to enter the field of textiles was the Chardonnet silk, the nitro cellulose fiber. It was by no means the same product we know today under that name. That is to say, it had not reached the state of perfection it has attained at the present time. It was coarse in structure and uneven in size, the thread running round and flat more or less in places and it was very hard to get an even level looking dye on it. While only few at that time took the new fiber very seriously as a textile fiber, it found its uses.

Dyeing Chardonnet With Basic Colors.

It was said that it could be dyed the same as cotton but it had a greater affinity for the basic colors and even today with the great improvement in the manufacture of this rayon it holds the same characteristic. It can be dyed with basic dyes without any previous treatment except when faster colors are desired, in which case it can be treated with katanal or tannic acid and antimony salt before and after dyeing.

The bath is made up rather long, using the proportion of one part of material to 35 or 40 parts water. For lighter shades some Turkey red or Monopole oil is added to the bath with the necessary amount of basic dyestuff added in two portions, dyeing started at 140 degrees F. When all the dyestuffs are entered into the bath and the yarn turned five times the bath is brought to the boil and the goods worked in it for 15 or 20 minutes longer to even up the shade. Addition of salt or acetic acid to medium or dark shades may be made to deepen the shade and exhaust the bath and a little extra Monopole oil will help to level it if necessary.

Dyeing With Direct Colors.

Direct colors are also much used in dyeing Chardonnet but as in the case of cotton, very bright colors are not obtained with them. Nevertheless a number of shades can be dyed with them. The bath is prepared with the necessary amount of direct colors and the process is the same as with the basic dyes. Glauber's salt is better omitted when dyeing light colors, but for medium and dark colors an addition of Glauber's salt will help to force the dye on the fiber and exhaust the bath. Excessive boiling must be avoided as it tends to weaken the fiber and will not help in any way as dyeing proceeds better at 160 degrees to 180 degrees F.

With some direct colors an after treatment with chrome, blue stone, formaldehyde, or a mixture of them will increase the fastness to light and washing quite considerable.

Some direct colors can be used on Chardonnet rayon which can be diazotized and developed when fast colors are desired with this line of dyes, but as that requires a lot of handling and subsequent winding made more difficult, when very fast colors are required vat dyes can be used to good advantage.

Dyeing Nitro Cellulose in Mixtures.

Unlike Viscose or Cupra-ammonium rayon, the affinity of nitro-cellulose for direct colors is not more nor even equal to that of cotton and it is not as easy to control by heat. On the other hand, when used to produce a multi-colored effect on a fabric, with a judicious selection of dyestuff, it can be dyed along with other fibers and made to show up in a different shade alongside of mercerized cotton or other kinds of rayon without any previous treatments.

Best results, however, are obtained in multi-colored fabrics by dyeing the rayon with basic colors and after-treating the shade with katanol or tannic acid and antimony salt and weaving or knitting the colored rayon with the other fibers; then dyeing the fabric with direct colors. The colored yarn being thus made resistant to direct colors, some beautiful effects may be obtained.

The same effects may also be obtained with the rayon colored and after-treated as explained and used in a fabric containing silk or wool; providing no basic colors are used in dyeing the latter fibers, because the resist on the rayon has the effect of increasing the affinity of the fiber for basic dyes.

In dyeing fabric containing nitro-cellulose rayon and mercerized cotton it is best to start dyeing at the boil with direct dyes that have been tested to give the best result on both fibers at the same temperature, and finish the dyeings in the cooling bath using as little salt as possible.

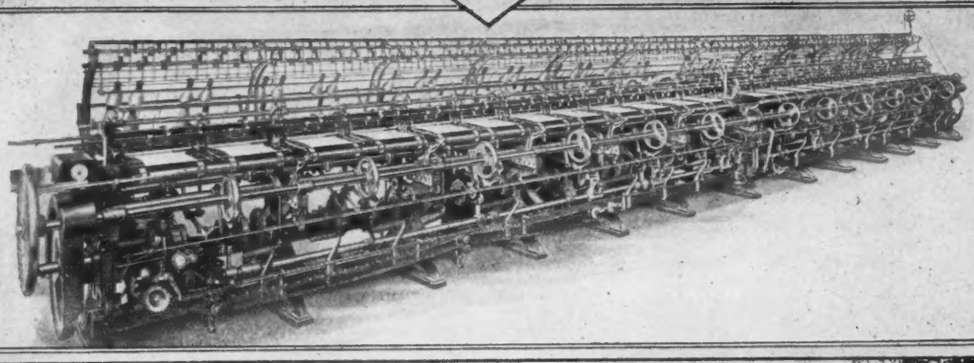
This rayon can be used in knitting hosiery that has to be dyed in multi-colored effect, as in fancy half hose using several different fibers, having one or more of them dyed in fast colors for decorations and dyeing the background tops, heels and toes, as wanted, after having been knitted.

The use of Viscose or the Cupra-ammonium process rayon will be discussed in a later article.

Bachmann Brothers Inc., to Expand.

Bachmann Brothers, Inc., manufacturers of the Flexalin humidor, etc., which have headquarters at 609 Commerce Street, Philadelphia, Pa., have announced plans for the erection of a new factory, located at Erie Ave., and M Street, to cost approximately $250,000. This concern was established in 1833, and it is stated that the growing requirements of the company's business necessitate an enlarged productive capacity and the introduction of improved and up-to-date advantages and facilities.

24 SECTIONS ALL GAUGES



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Operating *the* Banner Jacquard

The Second of Two Articles Giving Practical Points on Different Problems Involved in the Operation of This Mechanism

By Bannerman

THIS ARTICLE continues the discussion of the experiences of a practical knitter in the operation of the Jacquard on the Banner type of knitting machine. The previous of these two articles appeared in the November issue of COTTON. The author is likewise the contributor who prepared our recent series on the operation and adjustment of the regular type of Banner machine, in the KNITTING KINKS department.

The Pattern Drum.

To the jack dial is geared a pattern drum containing as many selectors as there are dial jacks. The drum is in two sections, each section raising or lowering, irrespective of the other, but in uniform sequence, so that when the drum idles, each half is at the same height and one continuous row of selectors is in operation. Each selector contains 48 butts by which the sinkers are controlled for 48 courses, or in multiples thereof.

Where there is a butt in the selector, it pushes the jack into the dial so that it does not engage the plaiting sinker, and no design is made at that point. The selector butt must engage the dial jack in the center, both horizontally and vertically. No. 1 selector is in the middle of the long butt dial jacks, which brings the changing point of the design in the middle of the low butt sinkers. To set the drum to engage the dial jacks vertically, loosen the three set screws on the drum gear and turn the drum so that the selector is in the proper position when it has pushed in and is just leaving the jack. If it is advanced too far it will break both selector butts and jacks by cramming against the preceding row and as the drum goes on the rims. The edge of the rim and butts should clear the dial jack ring by 1/32-inch, which will give the jacks sufficient push to clear the dial cam 15750.

Just above this timing gear is a gear ring support which acts as a safety to the selector drum and gear ring, and should never be forced into position in order to move the drum closer to the dial jacks. To secure this adjustment, move the selector drum shaft bracket 15680, which is located on the oil pan extension. Likewise, the selector drum connecting bracket 15683 should not be sprung, but just a snug fit, and there is ample room on the circular base for adjusting this bracket. To set the selector butts horizontally, engage the latch in the slot of the selector drum shaft and adjust the drum shaft collar 15717; turn the selector drum screw 15758 until elevating cam 25681 touches the elevating roll 25684, and then conform the plate side of drum with the latch side by adjusting the drum guide rod 15685 in guide rod support 15689. This is an important adjustment, and if the elevating cam is set too high, the roll will strike it each time the drum is idle, causing the latch side of the drum to "shimmy" up and down. When making adjustments, if the control screw gear bracket 15757 is removed it should not be replaced too tightly, as too much friction on the control screw gear 15759 causes excessive strain and wear on all of the other parts. Late machines are being equipped with an adjustable friction collar for this gear.

The operating cam gear 25656 is controlled by the dagger 25651, which is geared to the 104-tooth gear in ratio 4 to 1, making possible the raising or lowering of the drum on each revolution of the cylinder. When setting the dagger, loosen the set screws on the operating cam lever collar 15694; turn the machine so that the cam plate 25687 is half way into the cam 25683 and bring the dagger up snugly against a roll (see Fig. 6). When the dagger is full throw front, the thick point of the bevel should be flush between two rolls (see Fig. 7) with cam plate half way out of cam 25683. This will insure the continuance of the cam

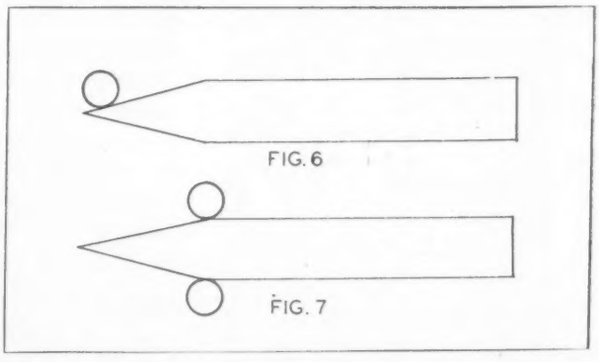

plate in the cam during the entire pushing operation of the dagger and will raise half of the drum. The latch extension will strike cam 25683, release the latch allowing roller 25684 to ride on elevating cam 25681 and raise the second section of the drum. For the lowering operation of the drum each side must drop of its own weight, but there is a safety cam 25688 attached to the latch side which should clear the cam 25683 when the drum is idling. The cam plate and latch must also have clearance to pass through this cam when idling and set screws are located on the bracket for this adjustment. The latch must open and snap into the next slot freely. If it binds, there is a smash, and if it remains open, the roller strikes the elevating cam, causing the drum to bound up and then

What's wrong with the top of this ad?

The top of this ad is like the conventional tops for Men's Half Hose — purposeless and useless so far as appearance is concerned.

Yet Men's Half Hose tops can make and should make a definite sales appeal. This is being demonstrated by the distinct market advantage which progressive manufacturers have gained with FANCY TOPS, as knit in an almost endless variety of harmonizing colors and designs on Fidelity Multi-Design True-Rib Machines. Why not investigate now?

FIDELITY MACHINE COMPANY
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MULTI-DESIGN

drop down too far, resulting in broken selector butts, dial jacks and sinkers. The latch spring lever must not be set close enough to keep the latch from going all the way into slot and the spring needs plenty of tension. The operating cam gear bracket is set so the gears 25656 and 15759 mesh snugly. Loose meshing causes unnecessary wear, tear and breakage of the parts. Have each dagger guide 25652 adjusted so that the push is equal on both sides with gear 25656 centralized when dagger is full throw front. If this gear is off center it gets a nudge each time the dagger is idled, and only one roll instead of two rests against the roll stop 25675. The dagger is controlled by stop lever 25670, and the cams should be cut so that the dagger will be released from and thrown into action on the backward move. This lever is adjusted when on a low cam so it will just clear the dagger on full throw front. When it goes off the low cam it releases the dagger from action and on high cams in ring, toe and starting point it will control dagger slide to lower drum to required position. On many patterns it is possible to eliminate the high cam in ring toe.

The proper operation of the drum depends upon the setting of the operating cam control slide 25692. Have the dagger full throw front with lever 25703 resting on a medium link; turn the dagger full throw back and set the cam adjuster 25689 so that it just touches the dagger slide and not back far enough to wedge or move the slide.

If necessary, the lever 25703 can easily be bent to secure this adjustment. Set screws are located on

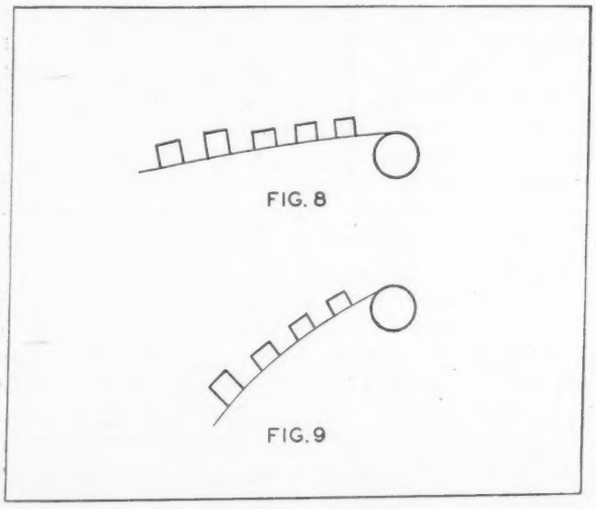

FIG. 8

FIG. 9

each side of the dagger guide 25652 for the adjustment of slide when the dagger raises or lowers the drum. The adjustments for the new style slide are the same, excepting that the slide may vary ¼-inch either way when in neutral without affecting the dagger.

To properly control this slide, each link of pattern chain must seat in 8-tooth sprocket in relatively the same position. Adjust the chain pawl in the low links so that the chain lever block 25704 is in the middle of the medium section when the dagger is full throw front. Set the rachet stop to hold the chain on each kick, and no trouble will develop in the high links, but if the ratchet stop does not function properly the block will not seat firmly on high links, resulting in the dagger striking a roll and causing trouble. Best results are secured by bringing the chain up on 8-tooth sprocket as level as possible (as in Fig. 8), instead of at an angle (as in Fig. 9). When changing from a long to a small pattern chain, this difference of angle will affect the chain pawl adjustment and must be taken into consideration before operating the machine.

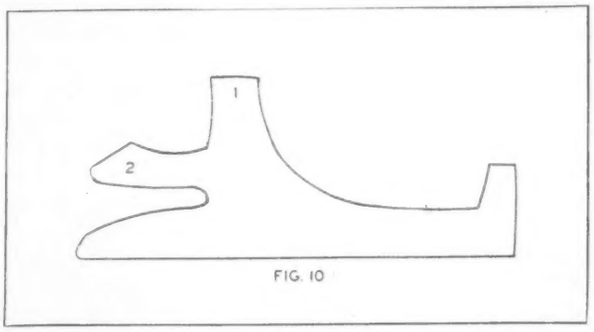

FIG. 10

A safety stop lever 25697 is connected to slide and should be set to neutralize the dagger when the top and bottom of the design on the selector drum has been reached. Then, if the pattern chain goes out of time, no serious damage will be done. The screw in this lever must have enough shoulder so that the lever works freely when the lock nut is tightened.

The chain pawl is in two sections, the rear section being controlled from the drum, and front section controlled by stop link in the chain. The correct tooth in which to set the chain pawl is determined by the design of the fabric desired, cutting of selector butts and position of striper roll or rolls on 104-tooth gear. Having the pawl advanced or retarded one tooth from the correct position will change the design on stockings from different machines when making a single course horizontal stripe with the selector drum. The rear chain pawl stop lever 25666 has both low and high cams on drum and should be set to clear the ratchet when on a low cam so that the front pawl will continue operating the chain until a stop link elevates it from action, thus stopping the chain at the desired point. The high cam is used in the heel and will raise the stop lever high enough to release both pawls from action and stop the chain immediately. These cams should be cut at both ends so they will operate the pawl, or pawls, as they are on the backward move.

The pattern chain links should work freely, all chain sprockets aligned so that there is no twisting or binding of the chain to cause unnecessary strain on pawls.

When placing selectors in the drum, the selector holders 15704 should not be screwed on too tighty, as this will spring the selectors out in the middle, causing selector butts or dial jacks to be broken.

The Sinkers.

The sinker cap and sinkers are the same on the Jacquard as on the diagonal machine. The action of plaiting sinkers is for Blade No. 1 (Fig. 10) to push back the yarn having no tension so yarns will not reverse plate and nib No. 2 is to separate the yarns to secure positive reverse plaiting. Best results are se-

cured by setting the regular sinkers in the heel and toe, and then adjusting the plaiting cam in the sinker cap. It is not necessary to bring plaiting sinkers in too far, as this will cause the yarn to be turned too much and no design formed. If they come in too fast, the blade occasionally gets under the yarn, causing loops on the inside of the fabric, but they must be continually moving as the stitch is being formed.

The first four sinkers in long butt needles are points, the same as used in short butt needles and are to stop the heel and toe yarn from looping at this part of the stocking. If you find holes in the corner, the sinkers are the first things to examine. The breaking of regular sinkers can be eliminated by polishing all edges of cams, especially the small center cam. These cams are all hardened, but the constant knocking-over of sinkers under tension, wears nicks, which eventually cause breakage. When holes are found occasionally in the short butt needle side of the plaited fabric, examine the rear side sinker cam. As the plaiting sinkers are drawn back to position they will also pull back the regular sinkers, and points get under the fabric. This is due to the cam being concaved too much in the regular sinker race, and can be overcome by grinding the cam at the point shown in Fig. 11.

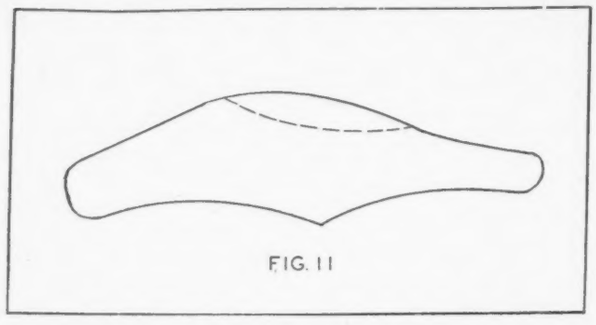

FIG. 11

Plaiting sinkers must also have a good clearance and free movement, as the slightest nick or variation from their course results in breakage. When replacing a broken sinker, the best method is to remove the cap instead of the small cam at the back of the cap. This takes a minute longer, but if the small cam is not replaced exactly right, and the sinkers aligned properly, several sinkers will be broken, resulting in unnecessary labor. If the sinker cap holders 493 are too loose, the sinker heel and toe divider will ride over the long butt sinkers when going into action, and jam the cap. If the regular sinker is in front of the plaiting sinker it will make loops on the inside of the plaited fabric in the same manner as a broken plaiting sinker splits the threads and makes loops on the inside of the plain cuff when two ends of yarn are used at random in the same finger hole. When one dial jack pushes two sinkers, and the first sinker strikes the dividing cam that jack should be removed. The point of dividing cam should not be blunt, and must fit on the sinker head so that the low butt plaiting sinkers do not slip under it. When the plaiting sinker side cam can not be adjusted in far enough for good plaiting, the point of the regular side sinker cam can be ground to give more clearance. A straight needle line is essential for good plaiting, and very essential when the new style running-on attachment is used to secure a perfect make-up. When the front stitch cam is released from action for make-up, care must be used to see that the center cam does not bind the stitch cam and hold it longer than the usual number of courses. Keep the carrier ring as low as possible to feed the yarns properly separated by the hump in the mouthpiece, and if necessary, the bottom of the mouthpiece can be ground to clear the sinker cap.

Some Suggestions.

A miss in the design may be caused by screws on the dagger slide becoming worn and burred, which will hold the slide in the same position for one or more courses. The shoulder screw on the pattern chain lever 25703 being too tight or too loose, springs on the slide lever 25694 having incorrect tension, pattern chain blocks 25704 striking 8-tooth sprocket when dropping off a medium on to a low section, screws on control slide lever bracket coming loose allowing the bracket to sag, operating cam adjuster not set with free movement or pattern chain pawl not set correctly. If the pattern shaft guard 103 does not fit properly, the striper links will strike it, kinking the chain and often giving the drum a kick at the wrong time, causing the pattern chain to go out of time. As mentioned before the ratchet stop pawl 25673 must be set to hold the ratchet on each kick of the pawl. The pawl holder block must be adjusted to ride on the stop links soon enough so that the chain does not get an extra kick. Springs on all levers should have sufficient tension so that the levers work with a snap, as lagging going into or out of action may lose one course. If the ratchet pawl stop lever 25666 raises slowly when going into heel, the chain is apt to get a half kick or just enough to throw the dagger out of time when going into the foot. This also may happen going into foot when the stop lever works properly going into heel, both causing misses in the design. All set screws and shoulder screws at the lever connections should be adjusted to reduce lost motion to a minimum.

If the dagger stop is not set properly, the dagger will strike a roll as it comes out of action, twist the gear 25656, allowing the latch to open and the drum will jam on the first backward move. If the dagger is not held high enough throughout the entire operation of the heel and toe, this trouble may occur at any time on the reciprocating motion. This trouble is due either to short cams or lost motion at the lever connections, and can be remedied accordingly. Both shoulder screws on the latch spring are in a reverse position, and due to the constant snapping of the latch, it is a good idea to check these screws occasionally and keep them tightened. The operating cam roll stop 25675 is also under constant tension, and if the stud slips or drops out, a jam or broken part follows. If the dagger jams and must be readjusted, the action of the raising cam and latch must also be checked for correct movement. Pawls often do not push the chain far enough for lever-block to seat properly on links, and the ratchet stop does not engage each tooth.

When the drum is properly adjusted, it seldom

(*Continued on page* 372.)

AROUND THE SEASONS WITH TORRINGTON LATCH NEEDLES

ALMANAK

1930 January hath 31 days 1st mo.

Now dreary winter's piercing cold
Fleets on the northern gale;
And trees though green look dry and old;
Snow covers hill and dale.

FARMER'S ALMANAK 1819-1930

KNITTERS who standardize upon Torrington Latch Needles face the new year with confidence in the ability of their production to meet modern demands. For that demand is based upon quality of workmanship.

Torringtons help you obtain this pleasing, profitable workmanship. Their efficiency is the result of years of specialization in precision manufacture.

Each correctly shaped head and accurately sized latch is exactly duplicated by every needle in the famous red and green box. This uniformity and other features of Torringtons are vital factors in knitting success.

Also manufacturers of Torrington Full Fashioned Needles, in wide demand for better production results.

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Spun to meet rigidly maintained specifications of high quality, Durene is rapidly filling knitters' and weavers' demands for a high grade, lustrous yarn which will either blend perfectly with other yarns or make up beautifully by itself.

The King of Mercerized Yarns, Durene, in woven or knitted garments is assuming a definite place among style merchandise in both the low and high priced fields. No other yarn within the price range of Durene can approach it in long wear, lasting sheen.

Durene as manufactured by the American Yarn and Processing Co. is spun from carefully selected long staple cotton. Special processing increases its durability, elasticity, absorbency and its affinity for dyes. Investigate *Durene*, the *durable* yarn with the subdued *sheen*.

Write for quotation and samples on all counts.

AMERICAN YARN & PROCESSING CO.

MOUNT HOLLY, N.C.

Representatives at all principal centers.

A Y & P Co

Reading Character in Hiring Knitting Mill Help

DEAR DAD:

Your letter with reference to employing new help for my knitting machines was read with interest, and the point you stressed, that character should be the first requisite, was well taken. This is what I am trying to do, but I am interested to know some of your methods of judging the character of one who is a stranger. I have some ideas of my own, but I would like to have yours for comparison.

I am getting along fine with my new machines. Business is very good and the prospects for the balance of the year are fine.

With love to all the family I remain,

YOUR DEVOTED SON.

DEAR SON:

There are no iron-clad rules that could be followed for judging the character of an applicant, but there are certain signs which suggest certain propensities that form character and which may be discerned during an ordinary conversation. For example, you might ask an applicant the time of day, or try to borrow his pencil to write his address. If he had neither a watch nor a pencil you would judge him to be one of those who are not time-minded, and whose notes and calculations are only simple ones. You might ask him to lend you his knife to trim your pencil. He hasn't a knife. How can any industrious man get along without a knife? A neat pen knife might indicate a degree of refinement, while a knife of the pruning size and variety might indicate a cow boy disposition.

You have often heard it said "beware of the man who can't look you in the eyes." This is not always a sign that he is bad, for the worst criminal can do this. Shifting eyes is oftentimes a sign of timidity. It is what is revealed in the eyes when you look into them that counts and by which you must judge.

In your first letter on this subject you suggested that I, being in a small town where I know everyone and their family characteristics, am in a better position to select help than you are, being in a larger city with a cosmopolitan population. I will say, in this connection, that the best breeders of thoroughbred chickens order their setting eggs. If the stock is good, new blood improves it. If it is bad, new blood is all the more necessary. There is always a danger of getting too many neighbors and kinfolks in your organization. Someone's difficulties is likely to invoke the sympathies of too large a number. This applies also to large families. When there is cause for one member of the family to be out it usually applies to the whole family. It is often necessary to lose a whole family in trying to discipline one contrary member.

But further considering the fitness of an applicant, the following dialogue will indicate to you some rather definite conclusions:

"What is your name and age?"

"John Doe; age 23."

"Are you married?"

"Yes."

"How much family have you?"

"Wife and two children." (*Inference*: *Assumed heavy responsibilities at early age; serious-minded; settled.*)

A New Year Message.

DEAR SON:

As we enter the new year, my mind is prone to retrospection, which is only a sign of old age approaching, but for you, I suspect the season has a different meaning. You, with your youth and vigor, will, doubtless, contemplate only the future, and are now making plans for greater accomplishment for the coming year. As I view the past with my eyes, and strive to see the future through yours, I have some thoughts I wish to have you consider.

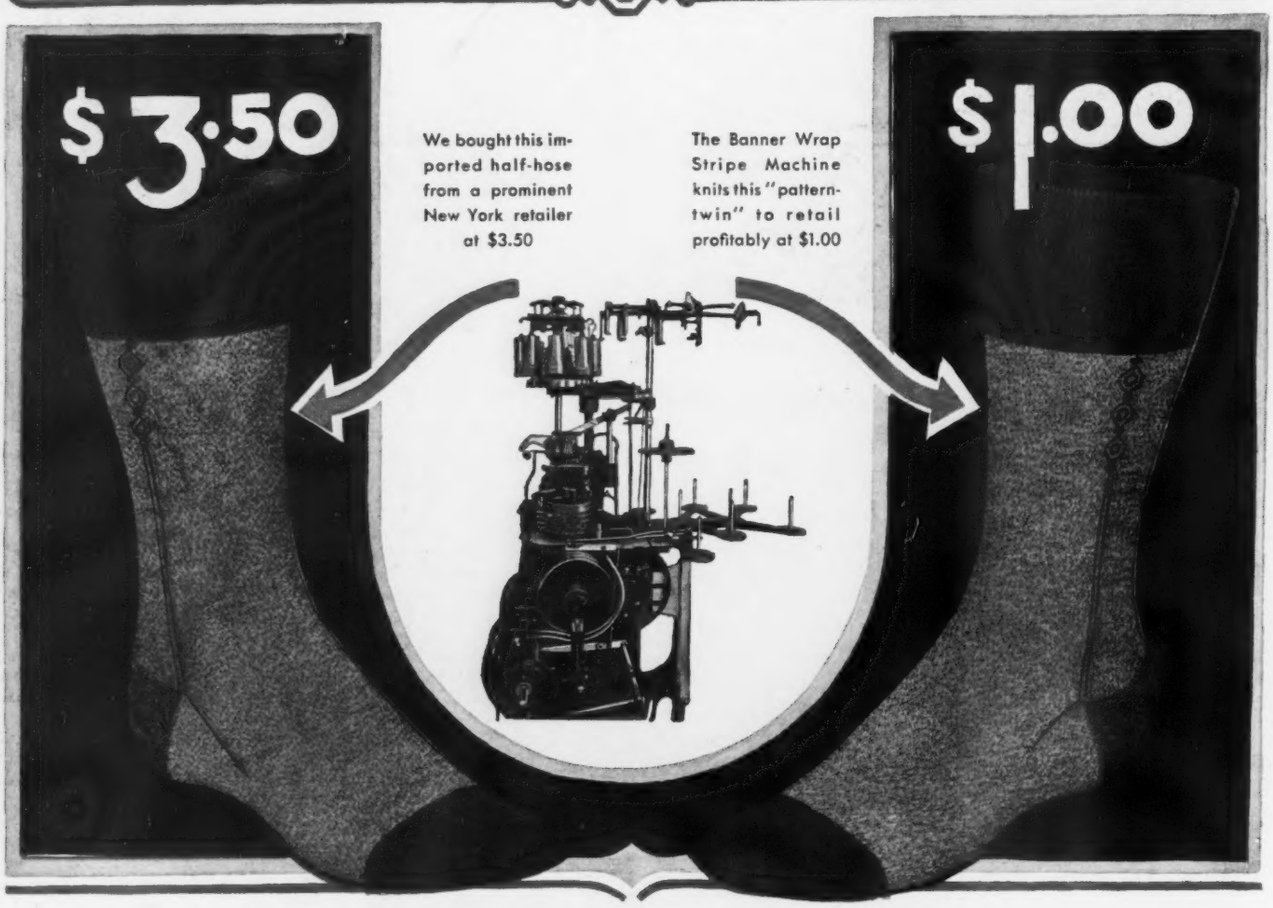
As we go into the inventory period and figure up the profits for the past year, the question arises—has everyone who has contributed to these profits in like manner profited?

If you can look over the personnel of your organization and see each individual's needs amply provided for and see health, happiness and contentment written on every countenance, then your accomplishments are praiseworthy, but, on the other hand, if you see poverty and disease and expressions of sorrow and disappointment on the countenances of many employees, then you have nothing over which to rejoice. You should take an inventory of yourself and consider your own shortcomings. If you are not capable of managing a business that will prove both profitable to employer and employee, then you are not fitted for the job, and in justice to yourself and society, you ought to quit and do something that will least affect the well-being of others.

Honest thinking is just as important as honest living. You cannot escape the result of your thoughts. If you have an impassioned desire to serve your weaker brother that desire will develop thought that will effect its accomplishment.

With love from your

DAD.


$3.50
We bought this imported half-hose from a prominent New York retailer at $3.50
The Banner Wrap Stripe Machine knits this "pattern-twin" to retail profitably at $1.00
$1.00

A test of merchandising values that means dollars of profit to you

HERE is a merchandising challenge the experienced hosiery man will not take long to answer. The $3.50 hose is imported. The $1.00 stocking pictured at the right, above, is identical in patterning, quality and style. Made on the Banner, Full Automatic, Wrap Stripe Machine, this "pattern-twin" sells for $1.00 with full profit to manufacturer, wholesaler and retailer . . . greater value to the consumer.

Another instance of Hemphill leadership. This concern is always seeking, through its board of engineers, to uphold the uncompromising standards to which its machines are designed and built. The Banner Wrap Stripe Machine is the first and only FULL AUTOMATIC machine of its kind. With eight color feeds, it is built for the finest gauges of men's half hose! A sample of its product will be sent upon request.

HEMPHILL COMPANY, Pawtucket, R. I.
93 WORTH STREET, NEW YORK

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THE BANNER
AUTOMATIC KNITTING MACHINES

"Where do you live?"

"717 Ashe Street." (*Inference: Good neighborhood, indicating character.*)

"Do you own your home?"

"I am paying for it." (*Inference: Indicating thrift.*)

"How is your health?"

"Good."

"Who is your family doctor?"

"Dr. Blank." (*Oftentimes the family doctor exerts quite an influence in the community. When a question between employer and employee arises he may practice politics, as a friend of the dear people, rather than his chosen profession. The same thing, of course, would apply to the preachers.*)

"Where were you reared?"

"Stem County. On the farm."

"At what age did you leave home?"

"Nineteen. I stayed at home until my two brothers were large enough to help my father with the plowing." (*Inference: The proper consideration for the old man. A good sign.*)

"By the way, do you know Mr. John Plank of Stem County?"

"I certainly do. He signed my note to borrow money to go to school. I will always thank him." (*Inference: Gratitude, which is a noble virtue. If Mr. Plank would trust him I can afford to take a chance on giving him a job.*)

Another example: In blows a young man with an acquired foreign accent and addresses you: "How about a job?" You look him over and note that both wrists are covered with some vulgar tattoo. You decide immediately that he was either drunk or crazy when he had the work done, and while he may have reformed, it is a safer chance to pass him up.

Glad to note your business is good. No news of special interest. All well.

With love and best wishes,

YOUR DAD.

New Catalogs of Fulton Sylphon Company.

Fulton Sylphon Company, Knoxville, Tenn., manufacturers of temperature control equipment, have recently issued several interesting catalogs. One of these, Bulletin No. 175, deals with automatic temperature control of air and gases, and gives complete descriptions of the Sylphon equipment for temperature control in cotton and knitting mills, etc. Bulletin No. 150 discusses automatic temperature control of refrigerating systems; and Bulletin No. 125 covers automatic temperature control of liquids. These bulletins may be secured upon request to the company.

E. I. Du Pont De Nemours & Co., Inc., Adds New Line.

The dyestuffs department of E. I. du Pont de Nemours & Company, Wilmington, Del., recently announced that they are placing on the market a line of azoic colors for printing under the name of Du Pont Napthanil Diazo Colors for Printing.

They claim the following features for this new series of dyestuffs; extreme brilliance; good fastness to washing and crocking; and their ease of application. They say that the dyestuffs are soluble in lukewarm or cold water and require no diazotization, being salts containing the bases in diazotized form. It is also claimed that by their use the difficulties in diazotizing encountered by some users will be completely eliminated.

A History of Hosiery Inspection

By Edward R. Ammon

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PART FOUR

THIS is the fourth of a series of articles on "The History of Hosiery Inspection," by Edward R. Ammon. The first article appeared in the August number, the second in the September issue, and the third was in November. Subsequent installments will appear in later issues.—The Editor.

THE MAIN STAY of hosiery inspection has been drawing the stockings over the hand and then stretching the fabric to expose the defects by spreading the hand.

In early days the parts that are looped and also the seam in the foot and leg were all closed by sewing with a needle and thread, in the hand of the operator.

While the workers did this, they mended any defects that they found; and inspecting as it is known today only commenced to come into general use in the last generation.

As mills became larger, inspecting as a separate operation appeared to be an advantage and firms commenced to adopt it.

Her Little Finger Soon Became Fatigued.

This suggested another need, that was for some kind of a form to take the place of the hand.

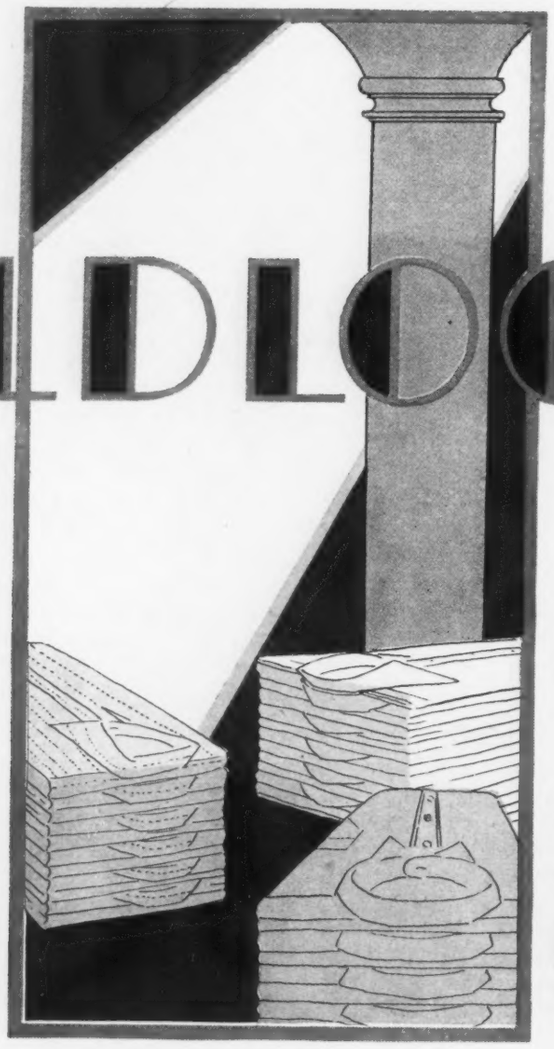
In having a girl draw stockings over her hand all day long, it was found that if she inspected conscientiously and tried to stretch every stitch so that the fabric would be properly spread out, and expose any defect that might exist, *her little finger soon became fatigued.*

Also in hot weather particularly, the continual drawing of the fabric over her hand and arms caused the skin to become rubbed and very uncomfortable.

These difficulties the forms avoided, but as the forms were solid and had no projections like the fingers, certain parts of the hosiery were very hard to inspect. Even though the operator pulled the stocking very tightly on the form, it was mostly like pulling a square toe over a round form.

Weighing the advantages and disadvantages of the forms, both flat and circular, they were an advantage over hand inspecting. This was not, however, be-

The FELDLOCK



turns out more work . . . **BETTER WORK**

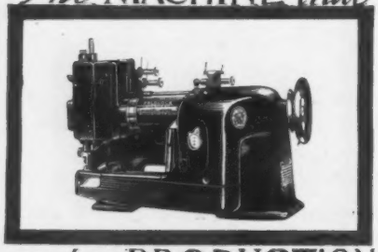
THERE has never been any question about the ability of the Feldlock to turn out a greater volume of work. It shows up on production sheets, and in extra profits.

The Feldlock produces a larger volume of lapped fell seaming because it feeds *off* the arm. It was the first machine to employ this principle—and today stands for the highest development of this vital feature.

Quantity of work is assured with the Feldlock. *Quality*, also. That is why it is known as "The machine that makes production".

It is time well spent reading the new, illustrated Feldlock booklet. It will be a pleasure to forward your copy upon request.

The MACHINE *that*



makes PRODUCTION

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Sole United States and Canadian agents for Cornely and Uniart Embroidery Machines.

"Set high standards of work by using genuine W & G Needles"

cause they were better adapted to spreading out the various corners of the hosiery than the human hand.

In fact, the hand adapts itself very much better to the proper spreading of every stitch than the forms. With a rigid outline there was no means of changing their shape like a human hand could, which accommodates itself to the various parts of the stocking. In consequence, it was very easily demonstrated that the human hand could still show up defects in certain parts of the stocking far better than the form.

The great redeeming feature of the forms, which mills commenced to make and use, was that they gave a more thorough spreading out of the stitches in return *for the energy expended by the operator.*

As a result, while their short-comings were manifest as compared to hand examining, the fact that both hands were outside of the stocking to manipulate it over the form, gave the operator twice the strength to apply.

In hand examining, one hand being inside the stocking couldn't assist in pulling it on, and the hand remaining outside had to exert all the energy. This was a disadvantage compared to operating the forms.

The advantage of forms over hand examining was never sufficiently outstanding to warrant them being universally adopted.

Problems in Figuring Depreciation on Hosiery Mill Machinery.

FIGURING DEPRECIATION on hosiery knitting machinery for inventorying was discussed from a variety of angles, as usual, when manufacturers came to writing off last year's wear and tear and sums representing another notch in obsolescence. Probably one of the more common-sense practices in connection with this periodical formality for keeping trace of profits and losses was that which was reported, incidentally, by a Philadelphia corporation operating a moderate size plant, successfully producing high-grade hosiery sold to the retail trade exclusively, under the concern's nationally known though not extensively advertised brand.

Included in the company's assets as set forth in its financial showing each month, and again at the end of the year, is an item "cash in hand." This item, which necessarily appears in probably every financial statement of a business establishment, in this case embraces a substantial proportion of the available cash that is deposited in a savings bank, separate and apart from the corporation's working capital, and which equals the aggregate of the amounts charged off for depreciation in inventories during the several years that the concern has been in business. In the savings bank the sum total of the depreciation allowances is drawing interest at the rate of four per cent. There was added to this deposit this year around $25,000, representing ten per cent of the value of the machinery and auxiliary equipment, the management stated in a discussion of the subject of depreciation and how it ought to be regarded for better safeguarding the future of a plant.

"We are operating only 42-gauge machines, installed less than six years ago," said an executive active in the management of the business, from production to sales. "The equipment has had proper care and is in good condition," he continued. "But if, as seems to be believed by some persons in the trade, this gauge is falling into the place where 39-gauge has been supreme in production of low price goods; if we shall have to put in 45- or finer gauge to keep in step with changing requirements of retailers, it will not be necessary to take from our working capital, borrow money or sell additional stock. We simply would draw on our savings account which has accumulated because we always have set aside the sums we claimed for depreciation when computing our Federal income tax. If we continue to knit 42-gauge only, then, by drawing against the same account we could add machines of the same type and leave our working capital intact. If the time comes when we could not do that, we would feel like getting out of business or taking steps for enabling us to compete with manufacturers who either do not know their costs or, knowing them, are taking losses while hanging on in the hope of something turning up to save them from surrender."

The mill in question, it is stated by officials of a Philadelphia bank, is the only one in the city known to banking interests as actually making capital out of depreciation, although, it is admitted, there probably are others, in lines other than hosiery, of course. The mill has been increasing net earnings each year of its existence since the first, and the management says the last quarter of 1929 led any corresponding period in shipments. The plant was, until sales shipments tapered when the trade had completed its purchases for the holiday shopping, operating day and night shifts. This state of plant operation raised the question in the mill referred to, and in others, whether, if the government permits a ten per cent claim for depreciation of machinery active but eight or ten hours a day, it would sanction a charge-off pro-rated on the number of hours in excess of eight or ten—that is, 20 per cent on equipment in operation day and night, as has been the case in a number of establishments in Philadelphia and Reading during a large part of 1929. A firm of public accountants of years of experience in that field professes to not know what would be the attitude of the Revenue Department were such a question raised in the scanning of income tax returns.

One manufacturer is known to have prepared a statement carrying a claim for 15 per cent for depreciation on hosiery machines operated sixteen hours a day and 20 per cent for that part of the plant kept running solid 24 hours a day from Monday morning to Saturday evening. What became of similar claims made in previous years has not been revealed by accountants who themselves are seeking information on the subject as to the prospect of getting them through. The advice of accountants to a client was: "Do not present an extravagant claim for depreciation or one thta you cannot substantiate. We think Revenue Department officials are inclined to be fair and we would recommend twice the allowance on machines running 20 hours as on those operating only ten hours a day, and feel the officials would approve the recommendation."

WITH sincere, hearty good wishes for Health, Happiness and Prosperity, we extend New Year Greetings to all users of mercerized yarns. May rich experience be the result of your endeavors and the greatest business success in your history reward your efforts.

We are not unmindful of the liberal use you have made of Dixie yarns during the year 1929, and we note with pleasure the demand that has steadily increased from year to year. For this we wish to express our heartfelt appreciation.

It is Dixie's purpose at all times to render a yarn service second to none . . . that affords pleasing practical and profitable production results for knitter, weaver and converter . . . and the generous approval you have given our products inspires us to renewed and greater efforts to make our service better and Dixie "yarns that meet every test" the most profitable the converter can buy.

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The Value of a Needle Tracer.

EDITOR COTTON:

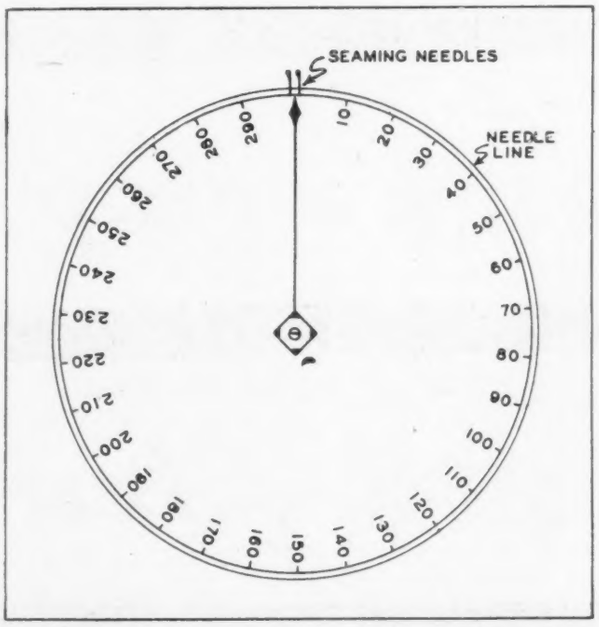
A great deal of time is spent in the tracing of needle defects on a knitting machine, and any device that will make this work easier by being able to find the needle quicker, thus saving the time and temperament of the operator, will certainly be a help.

Not very long ago one of my operatives made a statement to me regarding certain defects in the hose and told me of the difficulty he experienced in finding the defective needles. As a result of his statement, a needle tracer was developed that made needle tracing very easy.

As will be noted in the illustration, this tracer is set in the top of the cylinder between the needles—very much the same as the centering jig which is used on the Scott & Williams Model K machines for lining up the transfer dial. The tracer rests on top of the sinkers when in the cylinder.

The outer edge of the plate is graduated into sections, the width of each section being either five or ten needles. The width of the tracer plate is dependent upon the diameter of the cylinder. A handle is placed in the center of the tracer plate for the purpose of raising and lowering the plate into the top of the cylinder.

As will be noted in the sketch, a line with an arrow head on the end of it is drawn from the center of the plate to the outer edge. This line is used as a set mark. That is, when the tracer is placed in the cylinder the arrow mark is in exact line with some fixed point—with the seaming or medium butt needles on a Scott & Williams Model K machine. The advantage of this arrow line is that when there is a defective needle mark, say 27 needles from the seaming needles, by placing the tracer plate in the cylinder with the arrow line in line with the seaming needles and turning the cylinder toward the front of the machine where the needles are removed from the cylinder, it can be readily seen that the defective needle is easily found due to the numbered marking on the tracing plate.



On a Scott & Williams Model K machine, the regular centering jig, which is used for centering the dial, can be used for a tracer plate. Here it is only necessary to mark the required graduations on the outside of the jig plate as on the tracer plate. Those not having these jigs may very easily make a tracer from any plate material.

It should be understood that this tracer does not require removing the fabric from the needles before it can be used. If during the course of knitting it becomes necessary to trace a needle down, all that is necessary is to raise the top of the machine, place the tracer plate on top of the machine, locate the needle, remove the tracer and proceed knitting. It only requires a few seconds for the operator to do this.

This device has been a wonderful help to me and I am sure that it would prove of just as much value to others.

CONTRIBUTOR No. 4669.

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Textile Machine Works is confident that the new Reading Full-Fashioned Knitting Machines will bring to their owners many a happy and prosperous New Year.

Sinkers Clog Up With Lint.

EDITOR COTTON:

We have always had considerable trouble with our Scott & Williams K machines clogging up with lint around the groove of the inside sinker ring. causing of course, streaked work. This trouble is more prevalent on our mercerized and cotton styles, due of course to the lint which comes off the yarn as the stitches are being formed. Our present method of taking care of this trouble is to clean out the cylinders at certain intervals when they become bad. It seems to me that there must be other methods to prevent some of this trouble, so I was wondering if any other COTTON readers would have a better method in taking care of this.

CONTRIBUTOR No. 4619.

Knitting Ingrain on S. & W. Machines.

EDITOR COTTON:

In a recent number of "KNITTING KINKS", some questions with reference to the running of ingrain work on knitting machines of the Scott & Williams type were asked by "CONTRIBUTOR No. 4659." He wanted to know whether it is practical to run ingrain work on machines of this kind from a manufacturing standpoint, and a discussion of the difficulties involved in the knitting and finishing of these goods.

This inquirer did not state just which type of Scott & Williams machine the inquirer had in mind. As you know, this company's machine may be roughly divided into three classes: The K machine which is used for ladies' hose, the H H machine, which is used for men's hose, and the B machine which is used for both children's and men's hose.

We do not have any of the B machines in operation, but we feel sure that they could be successfully used for ingrain work.

We are, however, running some of the spiral K machines on ingrain work, and we find that the manufacture of these goods on these machines is very satisfactory, and that they handle the ingrain yarns as well as any other machine. We are also running some of the H H machines on ingrain work, and we find that it is practical to use these machines for fancy ingrain goods, but that it requires closer adjustment and a better fixer to operate these machines on dyed yarn than would be the case on natural yarns.

However, this is true on any make of knitting machines, that the machines must be in better condition and have more skilled attention to operate on dyed yarns than on natural yarns. And a mill which has been running on natural yarn will find it difficult to use dyed yarn satisfactorily, until the help becomes experienced both in the handling of the yarn and in the upkeep of the machinery.

We find that the treatment and condition of the dyed yarns is of paramount importance. Sulphur dyed yarns are more harsh than yarns which are dyed with direct and developed colors, and we do not think it desirable to use any sulphur dyed yarns except in coarse gauged goods, such as boys' golf hose.

Also, the treatment of the yarn after it is dyed with softening oil is very important, so as to give the yarn the proper softness. We have made some very exhaustive experiments on the most desirable oil for after-treating yarn, and we believe that a high grade double sulphonated oil, used in a warm bath for finishing yarn, is about as good as can be obtained. The quantity of oil to be used can best be determined by experience, as it varies with the nature of the yarn and sometimes with the dye. Also, the amount of moisture in the yarn is an important consideration, and every knitter knows natural yarn will run better if it contains the right amount of moisture and will not run so well if it is too dry and will not run at all if it is too damp. The running qualities are more easily affected in dyed yarn by moisture than the running qualities of natural yarn are affected by this same cause.

Also, the winding of the dyed yarn is very important, that the tension be uniform so that the yarn is not too tight or too loose. If it is wound on a cone the cone must be of a proper taper and must not be too large. As to the winding on the bobbins, we use only bottle bobbins and are not familiar with bobbins of other shapes. We have found for fine gauge work that a bottle bobbin three inches in diameter and 8½ inches high is the most desirable.

It is also important that in the winding machines, the friction drives should maintain a uniform speed of the swift so that the yarn is not fed faster on the bobbin when winding on the larger part than when it is winding near the stem.

In the winding of dyed yarns, the tying of the knots and the placing of the knots play an important part in the running of the yarn on the knitting machines. Only weavers' knots should be used, and if winding on cones they should be placed at the top of the cone and if winding on bobbins they should be placed at the outer edge of the bobbin.

We consider the preparation of the yarn the biggest part of the problem in the making of ingrain goods, and we have found it difficult at times to purchase dyed yarns which were properly prepared. We are equipped to dye and wind yarns of all kinds, but we do not have sufficient capacity for all the yarns we need, so that we dye and wind all of our rayon and a large part of our mercerized yarn, but we buy most of our cotton yarns already dyed. We are able to get more uniform quality of the yarn by dyeing it ourselves, and are constantly working to improve the condition of the yarn as it goes to the knitting machine.

We have an automatically controlled humidifier where our supply of yarn is kept, and we are expecting to install before long automatic humidity control all over the knitting room. We also need a conditioning room in which to condition yarn which has become too dry.

I trust the foregoing information will be of benefit and interest to those concerned with this subject, and should be pleased to go into a further discussion of the subject with any readers who are further interested.

CONTRIBUTOR No. 4664.

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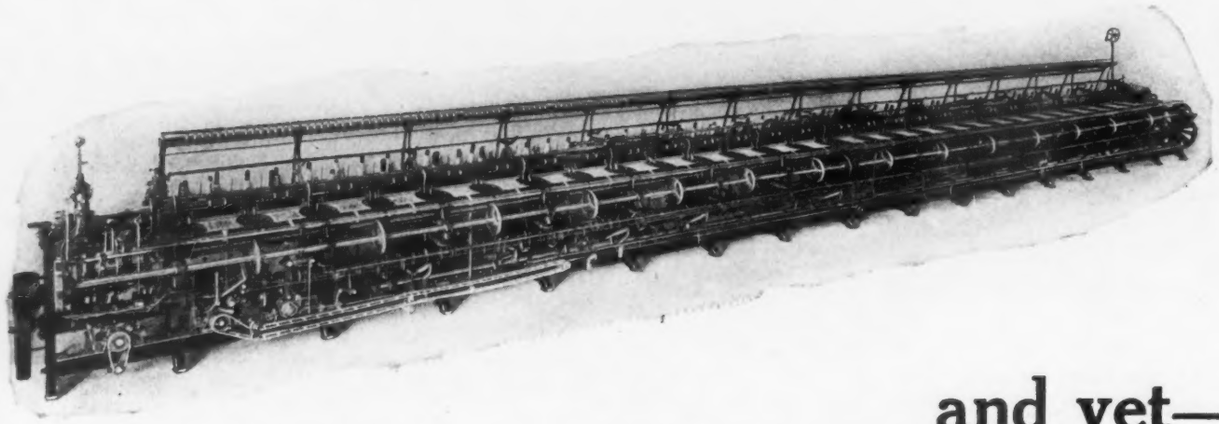

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Reducing Needle Breakage in Knitting.

EDITOR COTTON:

Referring to the inquiry in the August number of COTTON with reference to needle breakage on knitting machines. The man who asks this, "CONTRIBUTOR No. 4618," wanted to get an accurate method of keeping check on needles and wanted some suggestions on how to keep this item as low as possible, with a view to saving on his needle bill.

The best method I could suggest would be to have each fixer draw a certain amount of needles at a time from the office, having a record made of these needles as they are taken out by the fixer. Then, at the end of each month, his supply of needles should be checked upon, and the amount of work that has been knit on his section, that is how many dozen he has been knitting to the needle. If the percentage runs too high, the head fixer (if there is one), should see if there is any machine smashing on that section, and if so these machines should be fixed. I have known of machines to be smashing up and the fixer would just fill them up with needles and let them run on, and in a day or two they would smash up again. And that kind of trouble surely will cause needle breakage to run high.

A. B. (TENN.)

Uniformity of Adjustments.

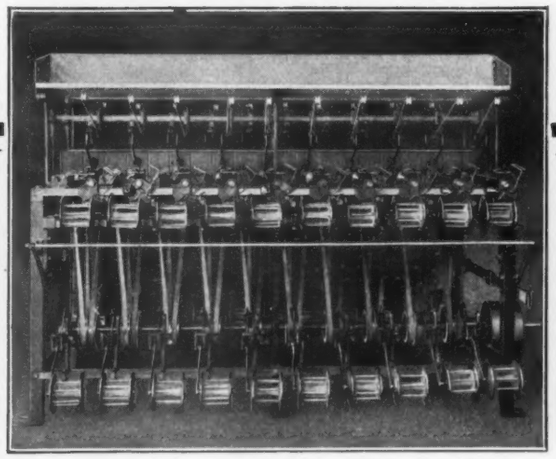
EDITOR COTTON:

It is a good policy and good fixing practice to insist that all fixers have the same adjustments made to their knitting machines which are alike. By this, it is not meant that every cam on the machines should be exactly as the rest of the cams, because it is understood that there is always a slight difference in adjustments on most every machine. But standardizing the method of threading the machines, having the yarns positioned on the frame the same, and having the tensions on the machine in the same place, should, after the best method has been determined, be adopted for all the machines.

It is a common practice for fixers to thread differently machines which make the same product, believing that by so doing they can get out of certain troubles. If this is so, then conditions are not as they should be, and should be changed so that the machines might run their best.

There should be a set of printed rules as to the standard method of making adjustments to the machine, such as, setting the sinker cams, concaving the stitch cams, fitting the pickers, and all the necessary information along this line which will insure uniformity. Standardize the method of the fixers of doing their job to the best advantage. Have a standard adjustment for the yarn tension, for, if this is not done, uneven lengths, along with unnecessary wear to the needle sinkers and fingers, will result. Also standardize the method of putting belts on the machines and the method of caring for them properly.

Standardizing is one of the main steps to take in order to keep the costs down in the knitting department, and it is surprising to note the results that can



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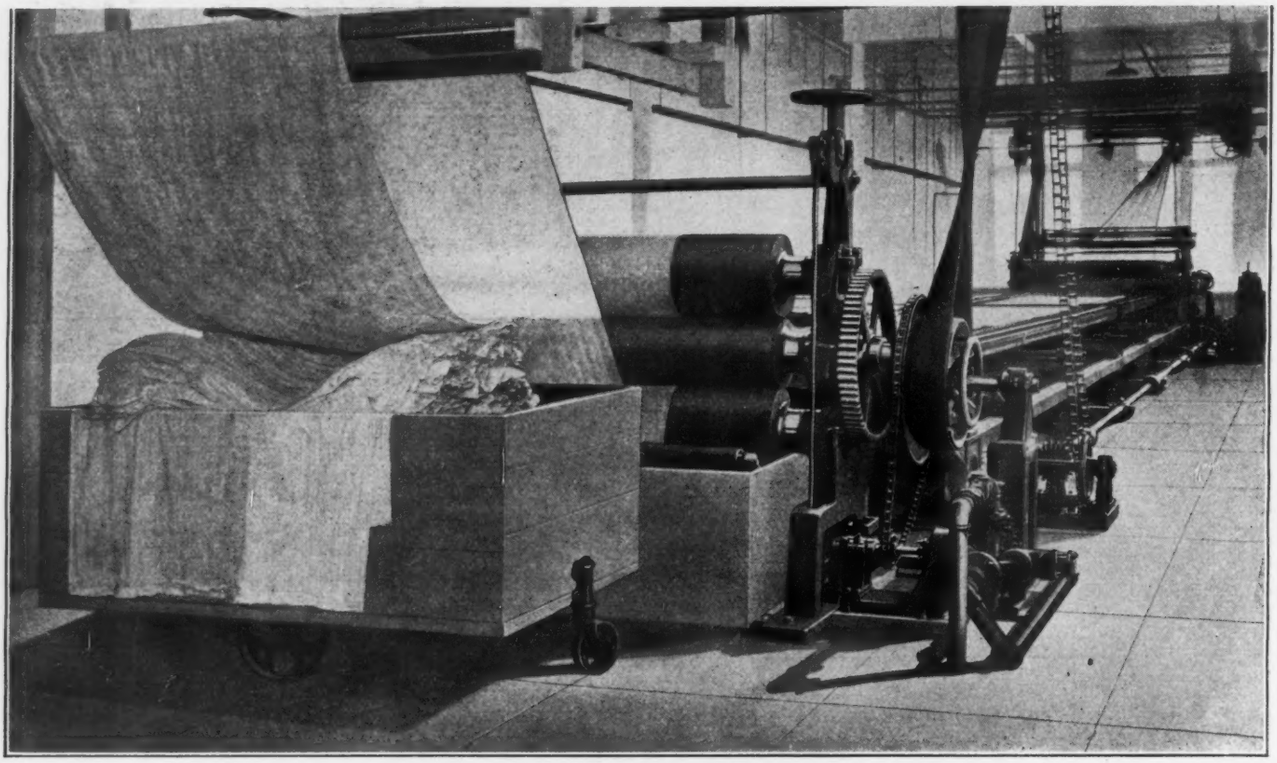

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Now, however, with the general buying and consuming public becoming familiar with the sheen and strength imparted to fabrics by mercerizing, the demand for mercerized goods should be tremendous.

Because of the fact that several years ago we saw this eventual demand for mercerized fabrics and yarns our engineers have made studies of problems and processes of mercerizing. We are now ready to work with any organization interested in finding out more about the possibility and advantage of mercerizing its products. At your invitation one of our engineers will be glad to call.

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CONTRIBUTOR No. 4599.

How Do You Prevent Looseness in Drum Cams?

EDITOR COTTON:

We have always had more or less trouble with the drum cams coming loose from the drums of our machines. These cams are the ones that receive the most wear, such as on the Scott & Williams machines, set up cams, transfer cams, shear cams, etc. As the screws in these cams become worn they are replaced of course, and tightened well, but they gradually wear and become loosened. Probably this is the only remedy for this trouble, but the writer is wondering if there is not some little "kink" which some of the readers of COTTON are using, that would be helpful to us along this line.

CONTRIBUTOR No. 4617.

What Size Seaming Thread Should Be Used?

EDITOR COTTON:

I should like to know what is the proper size seaming thread, and kind, to use for a Scott & Williams Model K 3½-inch, 260-needle seaming attachment. We are having trouble with the seaming threads. We now use 50s/3 mercerized, making large loops while making the seam. Some of this trouble is due to snagging trouble when the transfer is made off welt, and some of it is due to other causes. It is our impression that we may not be using the proper kind and size of seaming thread. Will some reader please give his ideas?

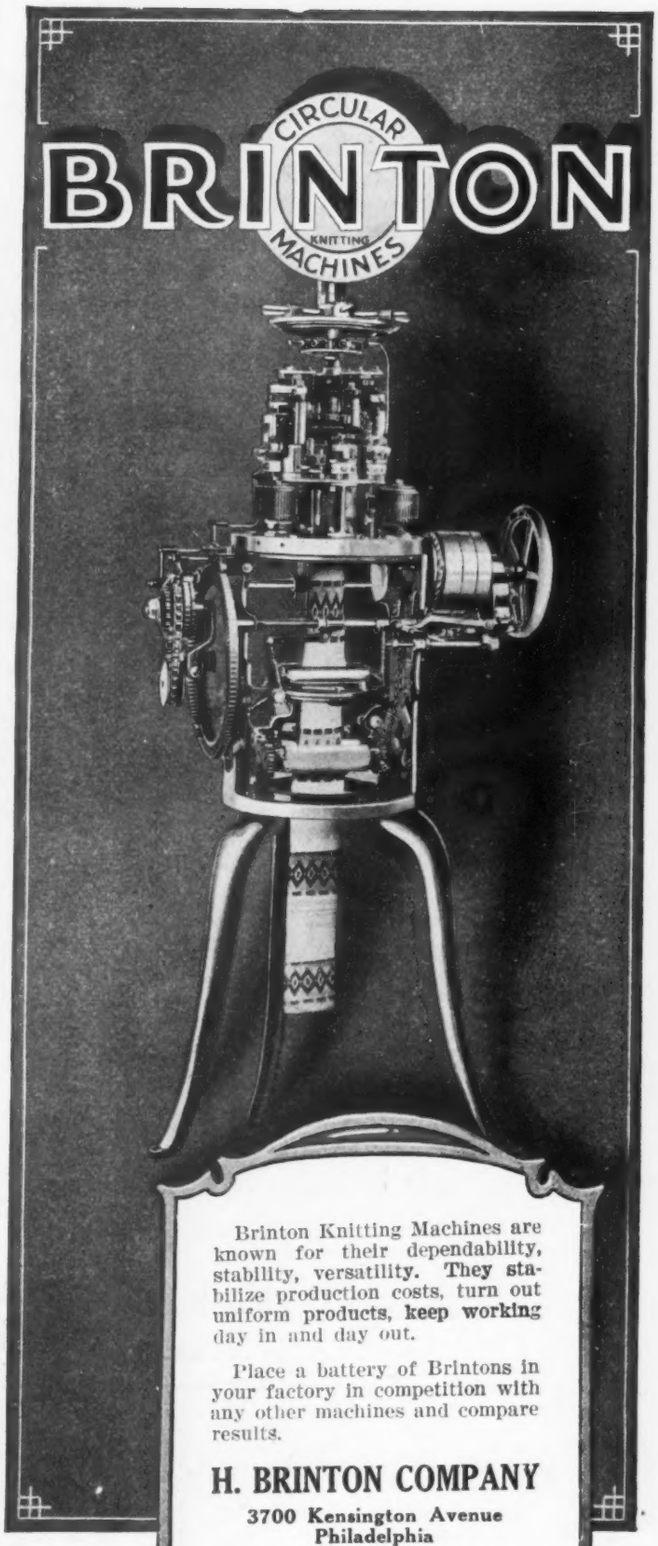
CONTRIBUTOR No. 4622.

Degumming Silk Plaited with Wool for Dyeing.

EDITOR COTTON:

In a recent issue of "KNITTING KINKS," "CONTRIBUTOR No. 4115" asked for information on a suitable preparation for dyeing a hose made of mercerized toe, heel and ribbed top, with the boot of two-thread genuine silk plaited over 1/50 wool yarn. He stated that because of knitting trouble in running a boiled-off silk, he wishes to knit a gummed silk, afterward degumming so as to secure the luster of the silk and leave the wool in good condition.

In a case of this kind, I do not believe that the usual silk degumming oils, of which there are many satisfactory brands on the market, would be applicable. These oils are generally highly alkaline, and due to the protective effect of the dispersed silk gum, the silk fiber, as well as the cotton toes and tops, come through with unimpaired strength and luster. In case of wool, alkaline oils have a harshening effect, and the wool being exceedingly porous in the presence of dispersed silk gum, tends to absorb the gum and stiffen up on boarding. Furthermore, wool and merino yarns are rather heavily oiled, during manufacture, and the silk boil-off oils are not effective in clearing these yarns



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of oil, which of course must be done to secure satisfactory results.

However, later developments have made available chemical solvents suitable for conditions similar to this case. One I might mention produces, in a water solution, a maximum solution of waxes, pectins, silk gums, mineral oils and the like. This compound when combined with soap and tri-sodium phosphate, will constitute a boil-off bath which will remove and keep in solution the silk gum, at the same time removing the oils from the wool and bring both wool and silk through with excellent luster and handle.

The boil-off bath should be made up of equal parts of such a solvent, and olive oil soap and tri sodium phosphate, about four per cent of each. Enough of these chemicals should be used to produce a heavy and lasting suds in the machine, running 40 minutes at 190 to 200 degrees F., trying a thoroughly rinsed sample for removal of gum. Then, if the operation is complete, rinse the goods through warm water sufficient to rid the goods of all dissolved silk gums and wool oils, then extracting and dyeing in the usual way.

A. C. (TENN.)

Methods of Eliminating Waste In a Full-Fashioned Knitting Mill.

If you can offer any suggestions on waste reduction not mentioned by this man, write the discussion department and tell about them.

EDITOR COTTON:

In reply to the article by "CONTRIBUTOR NO. 4642," in which he asks about the percentage of waste in a full-fashioned knitting mill and methods of reducing it, I will offer the following from my own experience, but cannot say whether this is reasonable or unreasonable.

I believe in a mill running silk which runs 81 per cent evenness that the waste percentage on leggers would be around 2 per cent, or possibly 2½ per cent. Waste percentage from footers, knitters running the same quality silk, would be 3 per cent, or possibly 3½ per cent, this depending largely on the quality of work that the toppers are turning out.

I believe that possibly 50 per cent of all waste in the full-fashioned mill, both legger and footer, could easily be traced to the topper.

The foregoing data is based upon 42-gauge machines using 7-thread silk, Special Crack Double Extra.

A few ways of cutting down waste would be to use the highest quality silk possible, and to watch all porcelains on the back winder and remove them when they show signs of cutting. I also believe that the grade of silk used would have a great deal more to do with reducing waste than the gauge of the machine. Then too, the knitters should be made to run the bobbins as close as possible without danger of press off. The footer knitter can save much waste by cutting out the silk and toe yarn on any head which has a hole too large to mend, and, if the footer will save all stockings which make a hole in the toe large enough to necessitate re-topping until a full set for the machine has been accumulated and then count off the correct amount of points on the topping stand and top these stockings on where the toe starts in, I feel sure that there will be a considerable saving noticed here.

I hope to see in these columns at an early date what some others are doing to eliminate waste so that I may improve on my own system.

CONTRIBUTOR NO. 4568.

The Effect of Moisture in Silk on Crepy Full-Fashioned Knitting.

EDITOR COTTON:

There were some interesting discussions on page 1335 of the September number of COTTON with reference to sleazy or crepy appearance in full-fashioned stockings. There is one statement in the letter on that page from "CONTRIBUTOR NO. 4573" with which I beg to disagree.

It might be interesting to recount some of this man's comments. He gave his definition for sleaziness as being "uniformly loose knitting or not enough courses per inch, while crepiness is small groups of distorted stitches occurring at intervals in the fabric out of position with reference to adjoining stitches." He said that a group of crepy stitches does not necessarily contain any more material than a similar number of normal stitches, but the abnormal shape they assume causes the crepy appearance.

He further expressed the belief that this crepy condition is the product of a knitting machine and not a dyehouse. He said that it may be possible for a dyer to remove enough loading material, such as gum, etc., to cause enough sleaziness to permit some predetermined distorted stitches held in position by the loading materials to readjust themselves, or he may by the free use of oils and other softeners counteract some of the distorted tendencies of some of the stitches. At the same time, he said that it is a fact that all of the crepe in a finished stocking was knit into the stocking, though it may not be as noticeable in the natural stocking as in the finished state.

Then, he said, if all crepe is made in the knitting, the problem must be attacked at its source, and expressed the opinion that the cause for most of the trouble is the condition of the silk when it reaches the needles. He said very little crepe formation will result if the silk is soft and pliable, and that to accomplish this the proper soaking solution must be used by the throwster and the right amount of twist must be put into the silk. Then, he said, "The knitter must further condition the silk by back-winding it and running it through a back winding solution which will penetrate the silk and soften it still more. Then it should be stored in a conditioning room for a few hours in a humidity of about 85 per cent in order that the silk may thoroughly and uniformly absorb the moisture. After the silk is carried to the machine it should be placed in humidors to prevent any drying out."

It is with his next statement that I disagree. This read as follows: "If an ample supply of soft water is maintained in the wick boxes and the wick boxes and wicks are kept clean, the silk will pick up still more moisture, and by the time the stitches are formed it

should be possible to wring water out of the fabric. The silk should carry as much water as it will contain without spraying on the machine."

Sleaziness, in the first place, is usually caused by running the silk too dry or by using silk which has not been back wound over a conditioning solution; but the application of water to the silk can very easily be overdone, as would be the case if the procedure stated above were carried out. When the silk is super-saturated with moisture there is a tendency for the sericin or silk gum, to loosen and accumulate on the needles as the fabric is being knit. This accumulation of gum on the beards of the needles causes loading, and consequently a large number of press-offs or imperfect stockings. Too much moisture in the silk is the cause of many broken needles and is just as much the cause of additional expense in the mill as is the production of sleazy stockings.

It is quite true that in furnishing an excessive amount of moisture to the silk, we overcome the knitting of sleazy fabric, but in doing so we bring about trouble with the machine. In order to eliminate the sleaziness arising from the use of dry silk and the mechanical difficulties caused by using silk that is too wet, it is necessary to study the condition of the silk and determine how much water must be placed in the moistening troughs to cause the fabric to have a damp (not wet) feel when knitted.

CONTRIBUTOR No. 4663.

A Full-Fashioned Machine That Eliminates Topping and Footing?

A FULL-FASHIONED HOSIERY MACHINE which, it is claimed by its inventors, will knit a stocking complete in one operation, eliminating bar topper and footer, still is on trial, theoretically, in the mill of the Oliver Knitting Co., Philadelphia. James and Thomas A. Oliver, president and treasurer, respectively, of the company by whom it was developed, having applied for a patent, decline to go into a discussion of its merits pending disposition of their application for letters patent.

Although several manufacturers have witnessed demonstrations with a complete working model of the machine and pronounce it "an improvement and practical, capable of producing a complete stocking by a single operation," most mill men profess to be skeptical of the possibilities claimed for it. William Meyer, president of Apex Hosiery Co., declares that in his opinion the machine is commercially practical. It is recalled that was what was claimed for single unit machines which were shown in Philadelphia 25 years ago.

According to John P. Nissen, for many years closely identified with the Cadet Knitting Co. and still active in that connection, states that about a quarter of a century ago Herman Staerker brought several such machines from Germany. They attracted much attention until found to be commercially impractical, it is stated, and eventually landed in storage in a textile building in South Langhorne, Pa., later being sold to a manufacturer now widely known for exclusively fine-gauge silk stockings. Several manufacturers succeeded since then in knitting a complete stocking on a legger, but the operation always was pronounced a failure commercially and artistically.

German machine builders are known to have expended much time and money in attempts to produce a satisfactory single unit full-fashioned machine, and it seems a general opinion among mill men that if the Messrs. Oliver have not solved the problem of the practical application of the principle involved in their invention, the time is not far distant when what was undertaken in the proposed exploitation of the Staerker machines will be achieved. "It is only a dream," says an official of one company engaged in the manufacture of knitting machines. The Messrs. Oliver insist it is a reality, but it is not expected to revolutionize the manufacture of full-fashioned stockings.

23% Versus 25% Boil-Off.

EDITOR COTTON:

Answering the inquiry of "CONTRIBUTOR No. 4074" concerning the comparative value of 23 per cent boil-off and a 25 per cent boil-off on full-fashioned silk, will say that I would prefer the 23 per cent on full-fashioned silk and 25 per cent on seamless silk.

Since the seamless silk is run dry from the original cone direct to the machine, the higher per cent boil-off makes a softer silk and will not crack or shear as easily in tight knitting. The stitch formation will be more uniform and the fabric will show less crepe effect.

The full-fashioned silk is run over a back-winding machine, the silk passing over a moistening trough and roller containing conditioning oil which lubricates the silk and softens the yarn and prepares it for the knitting machine. The full-fashioned machine is equipped with a humidor jar or box to keep the silk in condition, and in passing from the cone to the needles, it passes through saturated wicks, which wet the silk again. If the conditioning processes are properly done the silk will knit satisfactorily.

The method of stitch formation is more accurate and more positive on full-fashioned than seamless, and the moisture content is more important than the boil-off so far as even clear fabric is concerned.

The advantage in the lower boil-off on full-fashioned silk is obvious. The less the silk loses in the boil-off, the less sleazy the finished fabric will be. Then, too, the danger of the silk degumming on the machine and stopping up the yarn tubes, will be less on the lower boil-off.

I believe that the 23 per cent boil-off has been almost universally adopted as the standard boil-off for full-fashioned silk.

CONTRIBUTOR No. 4080.

All-Purpose Electric Sprayit.

The Electric Sprayit Company, 320 East Colfax Avenue, South Bend, Ind., announce the new All-Purpose Model Electric Sprayit to round out their line of hand portable spraying equipment. The company claims that this model was designed to meet the growing demand for a moderately priced hand portable sprayer with a pressure feed container suitable for covering wide surfaces quickly.

Ad. 159

Use Franklin Process Colored Yarns

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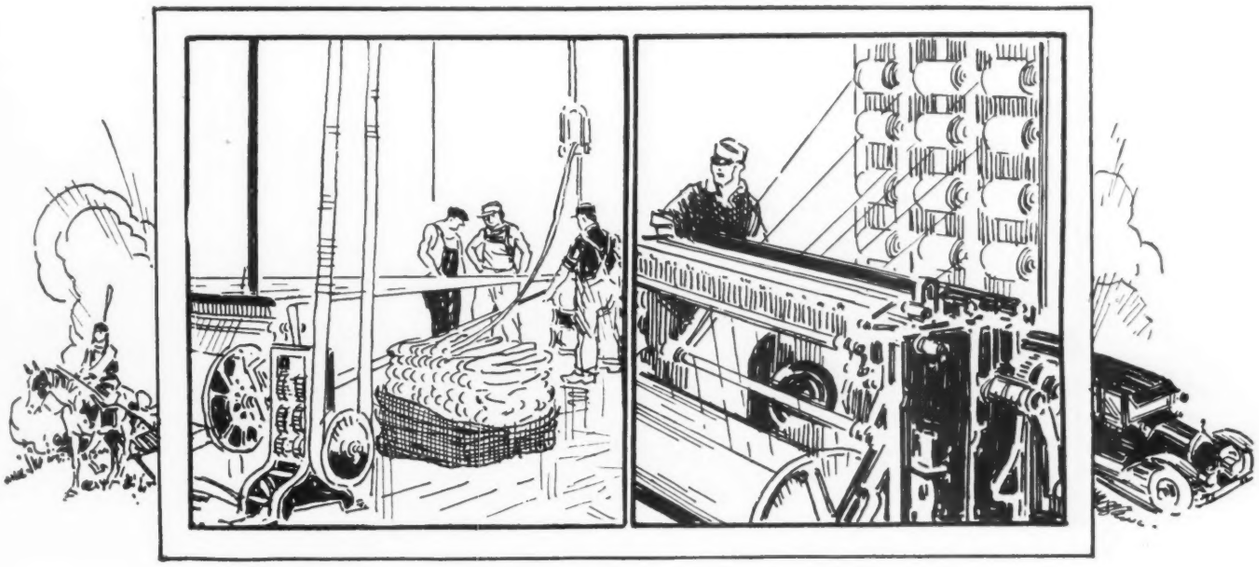

The Old and the New

The friction, as a dyed chain warp is pulled by a beamer, is suggestive of the horse drawn drag that the Indians used.

The modern method, the Franklin Process of dyeing in the wound form, eliminates excess friction, tangling and resultant breakage. It substitutes the antidrag or rotating method of warping wound yarn directly from Franklin Packages in a creel.

Yarns dyed by the Franklin Process come to you in excellent condition for subsequent manufacturing operations. This method of dyeing also offers the advantage of exceptional penetration, due to the fact that the dyes are *forced* completely through the yarn.

The complete story of this modern commission dyeing service is presented in a book that we have prepared for executives. If you operate a cotton or worsted weaving mill, hosiery or knitting mill, narrow fabric mill or braiding mill, you will find it profitable reading and we will be glad to send you a copy on request.

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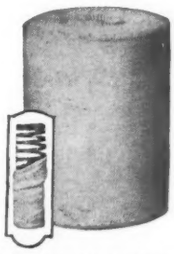

The Franklin Package
The spring tube is fully protected by patents.

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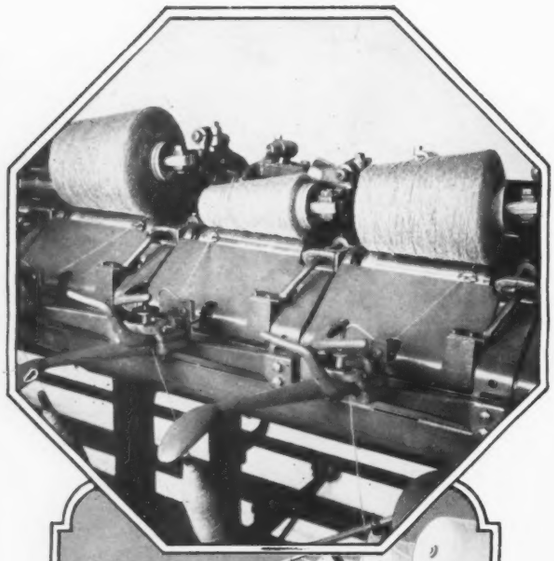
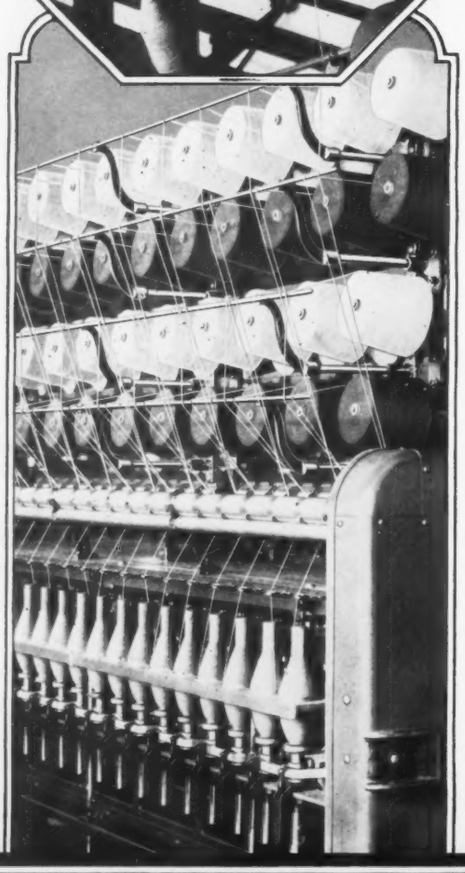
FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form

LEESONA
REG. U.S. AND OTHER PRINCIPAL COUNTRIES

The Yarn Supply for Twisting





THE overend delivery of yarn from stationary cones is undoubtedly the ideal form of creel supply. Four pound cones of cotton yarn, mechanically inspected during the winding on the #60-GF UNIVERSAL WINDER, mounted on our special Twister Creel, will run for one hundred and sixty-two hours without recreeling. There is no breakage in the twisting, as all slubs and thin places are removed from the yarn in winding.

Two machine tenders can operate 1800 spindles when using bobbins of 9″ traverse with 3½″ rings on a 5″ gauge twister. Doffing is necessary but once in twenty-seven hours.

Similarly, worsted cones varying from five to seven inches in diameter, according to the gauge of the twister, and weighing from 2½ to 3 pounds of 32's single, provide a creel supply sufficient for seven days' operation of the twister—and efficiency is increased 12% to 15%.

Yarn twisted by this method is of superior quality due to the elimination of imperfections, and the uniformity of tension both in winding and twisting.

UNIVERSAL WINDING COMPANY
BOSTON

UNIVERSAL WINDERS

301

The Driver Type and Leader Type Foremen.

One pulls 'em forward, the other pushes 'em. The law of human kindness always pays a foreman.

EDITOR COTTON:

I would certainly like for you to know just how much pleasure I received from reading my September issue of COTTON. I found it to be one of the most interesting issues I have ever read, and, after reading the article, "The Second Hand and Labor Turnover," I decided that I just could not resist sending in some comments on the subject.

After 19 years of experience in the textile industry, in both cotton and hosiery mills, I have come in contact with several different foremen or second hands and I find that there are two kinds of foremen. One is the leader type, while the other is the driver type, and I find that there is a big difference in the two.

In fact, I can go in a mill and if the foreman will leave the room for a few minutes, I will, in most instances, be able to tell which type foreman he is. The driver type tries to drive his employees to work, which causes them to reach the stage where they just work because they feel that they have to in order to hold their jobs. This causes them to keep an eye on the boss and when he leaves the room they don't care whether they work or not, so at least part of them loaf on the job and keep a watchful eye for his return. Upon his return, they immediately resume work.

On the other hand, the leader type of foreman has all of the employees liking him and they are seldom aware of his whereabouts. They work just as good when the boss is out as they do when he is in the room.

I think that a foreman, before reprimanding an employee for something he or she has done, should first give the matter serious consideration. He should place himself in the employee's place and think what he would like for his boss to say to him if he had done the same thing. If more foremen would do this, I believe that a great many foremen would alter the statements that they first intended making.

I am reminded of an incident that occurred some time ago. I was foreman of a knitting room and had a boy working for me who was a very good worker when he wanted to work, but he was always breaking some of the rules of the mill. I first tried to drive him into doing right, but soon realized that such tactics would do no good with this boy. I even tried to scare him by threatening to fire him, but he paid no attention at all to that. I felt that if I fired him I would be making a failure of the job, for I knew that he was capable of doing good work.

I studied the matter over and decided to try a different plan. The next time he broke one of the rules I went around to his machine and got into a friendly conversation with him. I then brought up the subject of his work and had a kind heart-to-heart talk with him, pointing out to him the possibilities of his future if he would really get in there and give the best he had in him. From that day on I never had any more trouble with that boy. He worked good every day and adhered absolutely to the rules of the company.

A little later on, the superintendent, in choosing a man for promotion, decided upon this boy. He received other promotions, and made good on every job on which he was placed. His continued success made me feel extremely good, for I felt that if I had fired the boy he might still be on some much smaller paying job. It also caused me to realize that I had carried out the desire of my superintendent, for when he hired me he informed me that anybody could hire and fire but that he didn't like that kind of foremen, as labor turnover was an expensive item for the company. He said it costs a company a lot of money to train new help to take the place of those that were already trained.

I have worked for some men that caused me not to care whether I worked or not, for it seemed that, regardless of the class of my work, they always found some fault with it. This would cause me to always keep my eyes open for another job. Then I have worked for others who seemed to always like my work, and when they did find anything wrong they would tell me in such a nice way that I was always only too glad to correct it.

I can sympathize with the foreman, for he has a lot of responsibility and a lot to contend with. He is what we might call the middle man of the industry, for he has to look to his superiors for orders and see that they are carried out, then look after the employees and help them overcome their difficulties. The hardest job of a foreman, however, is the control of his temper. He must absolutely learn to do this too, for when a man loses his temper he will say or do things that he will regret afterwards.

I know, from experience, that it is hard for a man to be able to control his temper at all times, but I believe that if he will always put himself in the other fellow's place for a few seconds that he will have gone a long ways in establishing control of that almost uncontrollable demon, temper.

CONTRIBUTOR NO. 4687.

Neolan Orange GRE and Neolan Brown R.

In Circular 322 the Society of Chemical Industry in Basle brings to notice two new representatives of the Neolan series, Neolan Orange GRE and Neolan Brown R, and claims the following advantages for the two new products, handled by Ciba Co., Inc.:

"Due to its excellent quality of level dyeing and its exceeding fastness to light, especially for piece dyeing, Neolan Orange BRE also is adapted for combining with other Neolan dyestuff. Cotton, artificial silk, and acetate silk effects remain white. The new product is advantageously used in printing due to its good solubility. Dyeings are discharged to a pure white with Hydrosulphite R. Conc. Ciba. Neolan Brown R is suited for dyeing wool in all stages of manufacture, such as loose wool, carded wool, yarn and piece. The dyeings are of excellent fastness to light and the new product combines readily with Neolan Orange GRE, Neolan Blue 2G, Neolan Green BL Conc. in preparing dark brown shades. Cotton effects are but lightly dyed, viscose and acetate silk remain pure white. Neolan Brown R can be used to advantage for coloring pure and weighted silk and also for the dyeing of leather. Dyeing is carried out in the customary manner for Neolan dyestuffs."

Removing Rust Spots from Full-Fashioned.

Everyone seems to be of about the same opinion on this; but if you have an idea on it, send it in.

EDITOR COTTON:

This is in reply to the question of "CONTRIBUTOR NO. 4603" in the "KNITTING KINKS" section of a recent issue of COTTON. This man reported that he was experiencing rust spots on his full-fashioned hosiery which had been hung on metal racks for drying, and he wished to know of some method of removing, or preventing such rust spots.

It is of course very necessary that damp goods be hung on metal that does not rust, or on wooden bars or racks.

We have had some little experience of this kind, and have treated the goods with a warm and fairly concentrated solution of oxalic acid, followed by a warm rinse, and then neutralized with ammonia. Perhaps this formula may be of some benefit to your contributor, and if he tries it, I should be interested to know how he comes out on the proposition.

CONTRIBUTOR NO. 4626.

EDITOR COTTON:

Iron rust spots on silk hosiery legs can best be removed by a treatment in a warm oxalic acid bath. The proportions for such a bath are one ounce of oxalic acid for each gallon of water. I am giving you this information in the hope of being of assistance to "CONTRIBUTOR NO. 4603," who submitted in a recent issue of "KNITTING KINKS" a problem with reference to rust on his full-fashioned hosiery legs produced from spots off of metal racks during the process of drying.

There is little danger of injury to the silk in a bath of this kind, yet oxalic acid used incorrectly may have a destructive effect on cotton and other vegetable fibers. If the hosiery legs in question have cotton in the welt or heel splicing, the contributor should exercise care in the preparation bath and should not permit the temperature to run too high.

This treatment will remove the iron sufficiently for dyeing any of the ordinary shades, but it would be unsafe to use the goods for white, as in the peroxide bleach bath, any remaining traces of iron will have a catalytic action which causes oxidation of the silk fiber, resulting in tender spots and holes.

CONTRIBUTOR NO. 4639.

EDITOR COTTON:

With reference to removing rust spots from full-fashioned hosiery, caused by storing on metal racks, the only method we have ever used is the boiling of the goods. The solution is not to exceed three per cent of oxalic acid. We have never had a great deal of trouble with rust, but where we have had it we have been able to remove the spots with this method.

Regarding the drying of full-fashioned hosiery legs, we have found it best to use wooden racks. If necessary, the racks can be covered with thin muslin to eliminate the possibility of splinters. It would be safer, however, to use a wooden pole which is perfectly smooth, since having muslin covered poles might cause other troubles such as mildew forming.

I shall be very much interested to see what other manufacturers have to say in response to this question which you published in a recent number.

CONTRIBUTOR NO. 4628.

Some Full-Fashioned Notes.

THE CORPORATE TITLE of Weber & Friedrich, Inc., manufacturers of women's silk full-fashioned hosiery, sold direct to the retail trade, was changed as of January 1st to Weber, Friedrich & Weil, Inc. The change followed the election of Leonard A. Weil, for some time sales manager, to the post of vice-president. Mr. Weil became a salesman for the Largman Gray Co. line of full-fashioned hosiery in 1924, and the connection continued even while he was sales manager for the Weber & Friedrich company, being terminated on January 1st, when he became a full-fledged eexcutive of the latter concern.

The company, says Mr. Weil, increased its distribution last year by around 40 per cent, making comparison with 1928. "Being an open shop plant," he stated, "we were able to operate day and night without interference, and the wisdom of this step for us is evidenced in the fact we sold our production right along." The company manufactures three-thread silk 45-gauge hose, much of it with picot edge directly above a band of fancy stitch, and four thread with fancy heels in black and self color. It reports a fair amount of business booked for early 1930 deliveries, which is contrary to the experience of many mills selling to retailers, those specializing in delivery of any order within 24 to 72 hours stating that as a consequence of extending this service dealers withhold orders until within a week of the time they will require the goods. All of the Weber, Friedrich, Weil 30 machines are 45-gauge, with the exception of one set of 51-gauge.

Predictions early in 1929 that 45-gauge machines would lead in the installation of new equipment during the year appear to have scored high for accuracy, especially as relates to the numbers of smaller mills. Among those long in existence there is seen a preference for a proportion of 48-gauge, a type which is being installed in the Philadelphia plant of the Cadet Knitting Co., together with a battery of 45s. The Cadet company will knit gum silk on its 48s, which some interests hold should be used exclusively for ingrain. It is expected the 42-gauge machines which the company is setting up in its new factory building in Columbia, Tenn., will be in production in January or February.

The new mill of Reginald Pike, in Cheltenham, in the immediate suburbs of Philadelphia, which commenced operating only a few weeks ago, is devoted to the manufacture of 4-thread 45-gauge exclusively, and it is stated the product is moving into distribution acceptably to Mr. Pike. He formerly was secretary and treasurer of the Opal Hosiery Mills, Philadelphia, in which several brothers are interested; the latter knitting French heel and picot top numbers.

Other 45-gauge plants of recent origin are those of the Zabel Full-Fashioned Silk Hosiery Mills, on the outskirts of Philadelphia; the Zenith Knitting Mills, in Philadelphia, and the Campbell Hosiery Co., Inc., near Phoenixville, all on chiffons. The Zenith is, in addition, knitting 7-thread silk on its 45-gauge machines, and is one of the comparatively few concerns producing stockings of this weight on equipment finer than 42-gauge. The Artcraft Silk Hosiery Mills will install 45s in the addition to its plant in Philadelphia which will represent a $300,000 expansion program for early 1930, and the same gauge is to be set up in the mill which the Modern Silk Hosiery Co. expects to have ready for operation by February, and which was projected by Samuel Tait, who is president of the Vogue Silk Hosiery Mills, using 45-gauge and selling overtime production for the last two years.

Du Pont Products Exhibit.

A window display of fast colored work clothing fabrics was a recent feature at the Du Pont Products Exhibit on the Boardwalk at Atlantic City. Various types of garments were shown carrying the Gregg Indelible Color ticket testifying that the fabrics of which they are made are vat dyed and guaranteed not to fade. The garments shown included one-piece garage and gas station suits, riding breeches, aviation suits, pants, playsuits, etc. The fabrics used were herring-bone twills in plain colors and with contrasting stripes and gabardine.

The companies represented in the display were: H. D. Lee Mercantile Co., and Cowden Manufacturing Co., Kansas City, Mo.; Bedford Johnson Corp., Lynchburg, Va.; Brownstein Louis Co., Los Angeles, Cal.; Allen Shirt Co., Cookeville, Tenn.; Monarch Overall Mfg. Co., Ltd., Winnipeg, Canada; and Angelica Jacket Company, St. Louis, Mo.

Durene Changes Policy Concerning Label.

Giving further momentum to the exhaustive research program which it recently inaugurated in the woven fabric field, the Durene Association of America announced recently that standard specifications governing the production of various cloths will be developed, and that woven fabrics eventually introduced into finished garments carrying the Durene label will be a guarantee to the retailer and consumer that they have been manufactured in accordance with the quality standards to be established.

Link-Belt Promotes the Hartley Brothers.

Link-Belt Co., announces the appointment of J. J. Hartley to the position of chief engineer of the company's Pershing Road plant at Chicago, Ill. He was formerly in charge of foundry equipment sales in the Western Division of the Link-Belt organization.

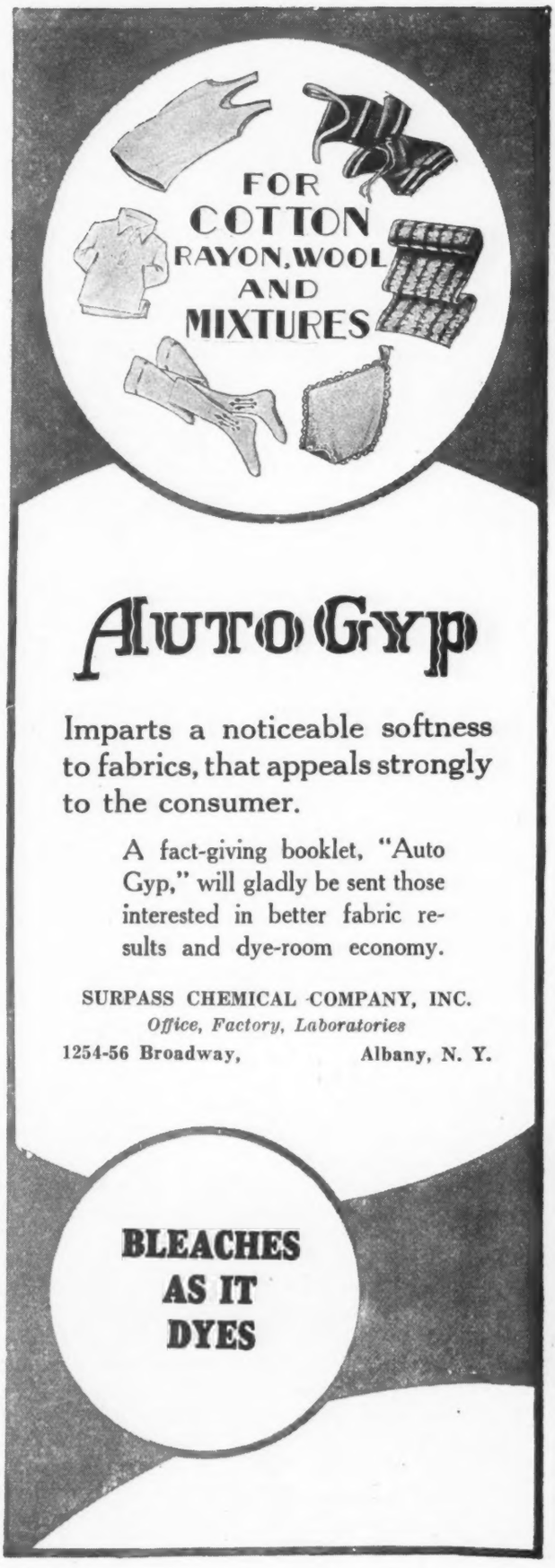
W. L. Hartley, brother of "J. J.", and formerly assistant in the foundry equipment sales department, has been appointed manager of this department to replace his brother.

Franklin Rayon Corp. Makes An Announcement.

Franklin Rayon Corp., Providence, R. I., recently announced that John Ervin and A. R. Fletcher will represent the company in its dealings with cloth converters, brokers and mill agents. Wm. Horowitz and Ralph Lyons will solicit the manufacturing trades.

Trico Fuse Moves Chicago Office.

The Trico Fuse Manufacturing Company, Milwaukee, Wis., makers of Trico fuse and fuse pulleys, have announced the removal of their Chicago office to 549 West Washington Boulevard, Room 614, Chicago, Ill.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COTTON
RAYON, WOOL
AND
MIXTURES
Auto Gyp
Imparts a noticeable softness to fabrics, that appeals strongly to the consumer.
A fact-giving booklet, "Auto Gyp," will gladly be sent those interested in better fabric results and dye-room economy.
SURPASS CHEMICAL COMPANY, INC.
Office, Factory, Laboratories
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BLEACHES AS IT DYES

The KNIT GOODS MARKETS

Last Minute Glimpse at Knit Goods Markets

SUBSTANTIAL business in hosiery has been booked by some of the full-fashioned mills, deliveries to start in February. While, in the main, orders had not been detailed late in December, it was stated that in many cases details had been received so far as it could have been expedient to supply them, and buyers had specified monthly quantities until May.

The fact that some jobbers revised their orders for ankle socks, stating they found they had detailed too many large sizes, has left the inference they believe the socks will be popular among juveniles but not likely to receive much attention among women. They therefore are revising assortments, reducing the number of 8½ size and eliminating larger sizes. A few mills report infants' and children's sold to May and no cancellations offered. While five-eighth length has been sold well, seven-eighth is reported in unusually light call.

Heavy weight underwear manufacturers professed to have no knowledge as to when the opening for the 1930 season would be staged, and many were prepared to see it postponed until February 1st. There is comfort for sellers in the fact that, while samples were shown in December 1928 for the 1929 season, there were no December offerings for 1930.

Knitted outerwear interests appear sincere in the belief that while business for 1930 may make a late start, sweaters will have a larger sale this year than in 1929 and that the outlook for bathing suits is for an increase in orders from swimming pool suppliers and dealers at the beach resorts.

There is perceptible nervousness among an element of wholesale distributors that makes it appear probable buying during January will be on a very much restricted scale, and that manufacturers would be justified in adjusting production to such an outlook.

SHIPMENTS of silk full-fashioned hosiery were in normal quantity in December and during the weeks while preparation for holiday sales were in progress. That is, they exceeded the distribution of the corresponding period of 1928. This was the almost universal statement of mill managements, and the fact so many plants were engaged steadily on long day schedules, to within around two weeks of the end of 1929 supplied supporting testimony of the activity during the period of greatest alarm over the slump in securities in Wall street.

Production of women's full-fashioned hosiery, all classes, was approximately 25 per cent greater in October 1929 than in the corresponding month of 1928, and in the silk classification the gain was several per cent more. Distribution since October seems to have about absorbed the usual proportion of current output. A part of the increase in silk full-fashioned doubtless was due to a decline of about 36 per cent in production of seamless silk.

While the figures represent comparisons of the tabulated reports of identical manufacturers, they cannot of course be viewed as conclusive. It is significant, however, that October 1929 showed substantial gains over October of 1928 as to full-fashioned in matter of net shipments, orders booked and unfilled orders at the end of the month. The one unfavorable showing in the statistics was that of a 15 per cent increase in stock, finished and gray, in the hands of manufacturers at the end of the month.

Because, particularly, of the stock market flash and the importance it received in forecasts of trade conditions in 1930, it was believed the January lull would be more pronounced than that which ordinarily follows the holiday briskness, and accordingly there was haste to curtail production of hosiery so soon as there was noted a general tapering of orders to mills in December.

Large mills distributing to the more important jobbers appear to have about the usual volume of business booked for the first three months of the year. Some mills were advised by scattered jobbers that what had occurred would make no difference in their attitude toward deliveries beginning in January. It seemed to be the general disposition to go ahead in disregard of the stock slump until, if ever, it called for a halt. The outlook, in consideration of sentiment as it developed when there came time for sober reflection, is admittedly much improved over the situation six or eight weeks ago.

Low End Hosiery at Bottom Prices; Retailers Cut Profits on Better Grades

THAT RADICAL CHANGES in the marketing of silk stockings are to be looked for seems a pretty well established opinion in the trade, but it should have more to do with goods in their various classifications than in any adverse effect on volume of distribution. It may be pointed out that price reductions by retail stores in the closing weeks of 1929 were confined principally to hosiery not in the low price class, and which, therefore, would seem to face increasingly sharp competition. One store followed another in maintaining for weeks a price of $1.25 for stockings which each had been selling for $1.65 and up.

It would appear retailers are taking an arrower margin of profit on high grade lines as a means of competing with the low end and dollar goods. The latter cannot well be offered by manufacturers for less than current rates and thus face harder sledding since stores boasting of an exclusive clientele, and which had represented they did not solicit the trade that was paying less than $1.50 a pair, are featuring $1.25 as a price for their leaders.

A rather large lot of 39-gauge medium weight silk representing a mill overproduction was offered in the New York markets in December for $7.15 a dozen in the gray. The stockings were full 30 inches long, of standard width and apparently not skimped as to courses. Where they came from and who bought them for stock is not revealed by the

mill's representative. The transaction and the prices for substandard applied to standard lines in some of the better class retail stores may be regarded as foreshadowing the price trend for early 1930, when chain store organizations are presumed to be actively in the primary markets for underpriced silk full-fashioned hosiery of grades better than most of the chains have been selling. Contemplating the indicated drift, there is heard the question of what may be the effect of lower quotations on silk full-fashioned on the markets for Bemberg full-fashioned and spiral knit silk.

The pre-holiday retail markets may not have presented a fair test of demand for Bemberg full-fashioned, so that free offerings at 78 cents a pair in department stores may have possessed no significance. Distribution continues in good volume, however, according to several of the larger factors, with profits pretty well thinned for jobber and retailer, as they are also on pure thread silk.

Questioned as to the accuracy of a report that the company would discontinue offering women's hosiery, a person authorized to speak for the Schofield Shelmire Co., Philadelphia, wholesale knit goods distributors in wide territory, replied, "We never tried to do a great deal in women's hose." The buyer for a still larger jobbing house said it was next to impossible to find a line of women's silk to yield the usual margin of profit for wholesaler and retailer.

The South in the Spiral Knit Field.

The spiral knit line of the Archer Hosiery Mills, Columbus, Ga., is coming into the Philadelphia market, about simultaneously with its introduction in New York. An executive of the company spent some time in New York in December, preparing the groundwork for an active campaign for the mill line of fine gauge silks, understood to embrace a 320-needle number presenting several construction features not common in circular knit stockings.

While in 1929 the bulk of the very sheer circular knit adapted to the bareleg fad probably came from mills in the North, it is an admission in the trade that this year innovations in the spiral knit are likely to come mainly from southern mills; that the South will retain its prestige as a producer of the circular knit while moving rapidly to the fore in output of full-fashioned.

Spiral knit silk stockings with seamed back from a mill prominent in the Spiral Knit Hosiery Guild membership were added to the lines of two of the better known in retail stores in New York, in November, and figured in the pre-holiday sales. This was an achievement not easy to duplicate at that time, for, as was stated by the mill management, "It was harder to persuade retailers handling womens' in full-fashioned only to put the spiral knit in stock."

According to a northern manufacturer of both full-fashioned and spiral knit, very little spring business in the latter has been placed, while jobbers have offered little resistance to offerings of the fashioned. An executive of the Co-Ed Hosiery Mills in Philadelphia, which is reported having scrapped its

NEEDLES
OF
QUALITY
AND
DURABILITY

COOPER'S
HIGH-SPEED
LATCH
NEEDLE
WITH
NON-TURNABLE
RIVET

Smooth
Even
and
Strong

CHARLES COOPER CO., INC.
Manufacturers of
KNITTING MACHINERY AND
SPRING AND LATCH NEEDLES
Bennington, Vermont, U. S. A.

G. H. ROGERS, Traveling Representative, Lockrow Ave., Albany, N. Y.
G. W. MORTON, Southern Representative, 1002 Magnolia St., Greensboro, N. C.
ELBROOK, INC., 50 Peking Road, Shanghai, China, Agents for China and Japan.

39-gauge machines, foresees a parity for 39s and spiral knit in matter of competition with 42-and 45-gauge.

There appears a definite trend to heavier weight silk stockings for the winter months. This is not unusual, but is said to be more marked this season than ordinarily. Seven-thread of 45-gauge and eight-thread silks of 42-gauge have for several weeks been in increasing call, it is stated by a number of the smaller mills. The William Brown Co., which never discontinued its 11-thread silk number, had a heavier shipment of it this winter than in a long time, it is semi-officially stated. The stocking is sold under the company's trademarked brand—Granite hosiery.

Novelties in Men's and Children's Hose Have Period of Spirited Marketing

A MILL IN READING, which is reputed for its lines of ankle socks, and children's hose, reports being comfortably situated as to orders for juvenile's size anklets for spring deliveries starting in January. The mill was disappointed with the business in women's wool-mix anklets. Wool hose of nearly all descriptions was a light seller during practically the whole of the wholesale distribution season, and anklets in particular were taken very sparingly. The Reading mill referred to completed its orders for the season and withdrew the line from sale.

Ankle socks for juveniles appear to have been more heavily sold for spring than almost any other line of knitted footwear, and, as is the case with children's five-eight length, production of at least one mill specializing in patterns has been sold to May. Misses and juvenile lines, generally, appear to have fared better in the selling for spring than any class of stockings other than women's full-fashioned silk. The sales tend to refute the notion entertained by some hosiery interests that there is ahead four months of radically curtailed purchasing power, certain to be felt in more conservative buying of hosiery. This would be about the last of essentials to suffer from business depression, were such a calamity to be experienced.

More spirited buying recently of men's fancy half-hose, notably of numbers designed to be sold for a half dollar a pair, served to clinch the assumption that novelties are going to be even more popular this year than in 1929, and the opinion has gained ground that the very chaste will give way some to colors in combination fibers. While there has been activity in half-hose fancies priced 35 cents, or three pairs for a dollar, primary market interests express the opinion that the volume sales this year will be of 50-cent grades. This, and more striking designs, are said to be indicated in the orders being placed for spring. Yet, it is noted, the outstanding increase in production this year over 1928 was in rayon and cotton mixtures and silk and cotton in combination, while silk-rayon fell off sharply, as did pure thread silk, in both full-fashioned and seamless construction, and all-rayon lines. The index points directly to heavier sales of men's fancies this year than were registered last year, and some jobbers have made it plain they expect to materially increase their sales of boys' golf hose.

Jobbers Declared Not Ready to Buy Men's Underwear for Heavyweight Season

HEAVYWEIGHT COTTON UNDERWEAR MANUFACTURERS have been engaged for some weeks with the question of prices for 1930. It was commonly assumed some slight downward revisions from 1929 rates would be seen, and the more this probability was contemplated the greater the eagerness of conservative mill chiefs to put the opening formality off for so long as possible. Those who were out actively for postponement had to contend with an element that insisted upon coming on the market at the first sight of a buyer in any of the New York wholesale market centers. That there were back door showings by a few manufacturers is suspected in underwear circles generally. But so far as appeared on the surface, no harm was done by early offerings. There are rumors, but these mostly are on the vague order, and it has been next to impossible to get confirmation of any.

There was considerable activity in spot underwear during the December cool spell, this following a fair amount of buying in November. In fact, it is related of some mills that they had to decline quite a little desirable business and that some of the 1929 orders were not filled until after the turn of the year. If jobbers receiving late deliveries disposed of the goods and have the longed-for light inventories, they may be expected to operate fairly early in heavies for the ensuing season. Otherwise, it is felt in the primary markets, there will be comparatively little action before February. In any event, buyer and seller would be as well satisfied with a late start and a better slant on the outlook for raw cotton values than with books full of undetailed orders and cotton for the first quarter of 1930 in the balance. Jobber attitude toward heavies during this month and the next probably is foreshadowed in the extreme conservatism attaching to their operations in summer weights.

While it doubtless is true of some manufacturers, as claimed by them, that their shipments of men's light weight underwear to the end of the year exceed the outgo a year before, it is understood generally that most jobbers have contracted with rare caution, and that manufacturers are disposed to proceed in like manner. If mills generally knitting ribs and bal briggans were sold fairly well ahead, all would be well in the summer underwear camp. But, it is pointed out, in the event there is great eagerness for nearby business, those in search of it may take a chance on shading prices. The same fear is said to pervade the buyer fraternity, and so long as cotton remains a problem and mills are suspected of being in need of orders, buyers may be inclined to continue their conservative policy until something happens to give them an inspiration.

Men's light weight underwear is said by some to have become more competitive, due to variety of style in a range that permits a price disparity that

cannot always be properly attributed to price competition. Until large interests obtain virtual control of production of both knitted and cut-and-sewn underwear, there is likely to be a continuance of present rivalry and the kind of rivalry that keeps the market for all types disturbed.

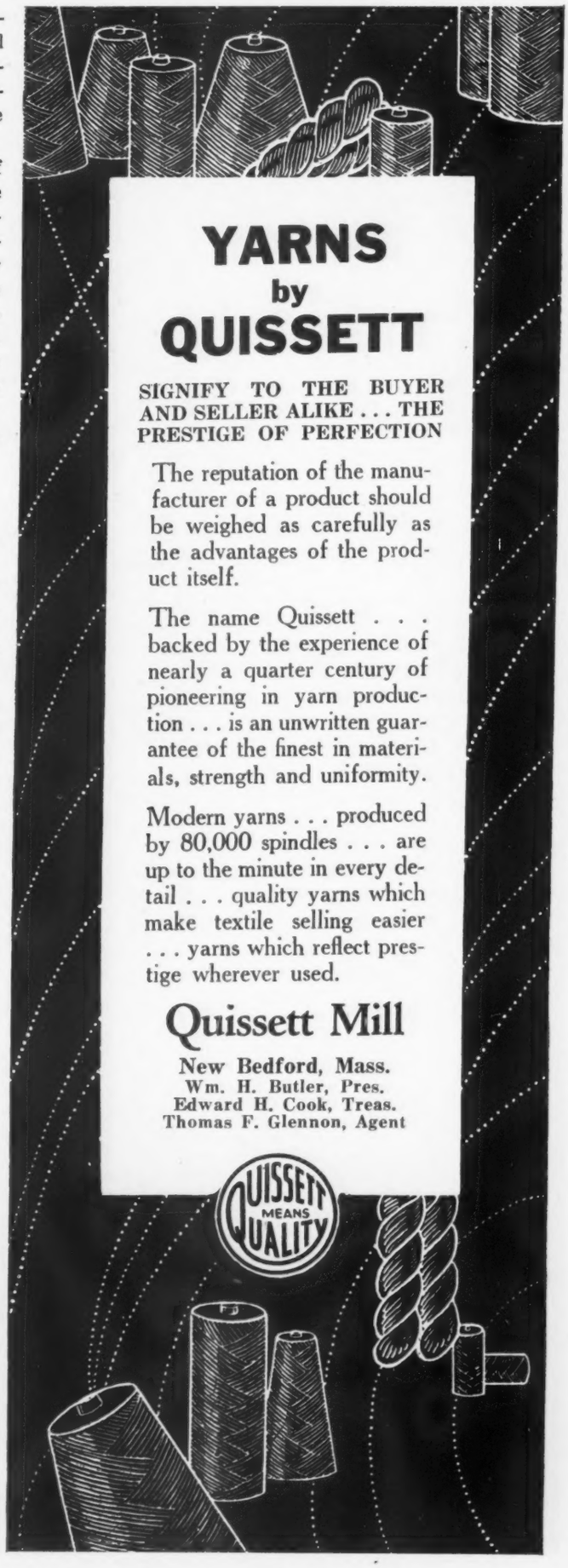
Some of the better entrenched manufacturers of women's cotton underwear appear to be more at ease than those engaged with men's. Upstate Pennsylvania mills generally have a satisfactory amount of business on their books for 1930, some stating their sales have been making slight increases during the last few years, and that the outlook for 1930, judging from orders in hand, indicates a gain over 1929. This is regarded the more remarkable in view of the very low prices at which fairly good rayon lines are available, and held as meaning that when it comes to real comfort and service cotton underwear has yet to be matched in such particulars.

Knitted Outerwear Trading Halted While Jobbers Consider 1930 Lines

BUSINESS IN SWEATERS finished the 1929 season in the primary markets in somewhat jerky fashion. There was a sharp decline in sales in November, due to an excess of temperature, a leap in volume in early December, on a drop to seasonal, and finally a near cessation of trading, when dealers felt they had bought as far ahead as was consistent with the move toward a zero inventory as to knitted outerwear. All the while, however, mills were in receipt of small lot orders for spot delivery, many of which they passed along to other manufacturers. As the business had tapered off to a point where manufacturers found no reason for continuing production, except to fill orders, so far as that might be possible, they reduced work forces materially, some employing only from two to a half dozen knitters during the latter part of last month. Thus, there was slim chance of a jobber other than a regular customer getting acceptance of a spot shipment order.

Some little business for early 1930 has been placed, but, speaking generally, comparatively few of the orders have been detailed. They are cherished mainly for the expressed satisfaction with models and prices as they came out at the opening in Chicago. Mills hardly have put sweaters for this year in process, and have done very little in the matter of starting their bathing suit production campaign. Mill salesmen have been calling on jobbers with sweater samples for the last six weeks. Accepting the statements of representative buyers, they have not been interested in looking them over. It is expected they will begin this month to make up their season's lines and in February place their initial orders. Meanwhile, some additional business in women's sweaters for spring doubtless will be forthcoming, and it may be said the outlook in this division is regarded most encouraging.

Several mills specializing in Jacquard sweaters and golf hose to match report having taken some quite desirable orders. They are such mills as make


YARNS
by
QUISSETT
SIGNIFY TO THE BUYER AND SELLER ALIKE . . . THE PRESTIGE OF PERFECTION
The reputation of the manufacturer of a product should be weighed as carefully as the advantages of the product itself.
The name Quissett . . . backed by the experience of nearly a quarter century of pioneering in yarn production . . . is an unwritten guarantee of the finest in materials, strength and uniformity.
Modern yarns . . . produced by 80,000 spindles . . . are up to the minute in every detail . . . quality yarns which make textile selling easier . . . yarns which reflect prestige wherever used.
Quissett Mill
New Bedford, Mass.
Wm. H. Butler, Pres.
Edward H. Cook, Treas.
Thomas F. Glennon, Agent
QUISSETT MEANS QUALITY

no changes of moment from year to year in their standards, and thus have an established clientele. The matched sets of one well known mill in this class sell for $7 and $15 per set respectively. The Jacquard sweaters in plain colors, and self color designs, with golf hose in colored designs are said to rank among the foremost in call.

A backwardness in getting started with business in sweaters for 1930 is reflected in the markets for worsted yarns, said to be nearer a standstill than in a twelve month. Manufacturers had been hoping for lower prices before becoming actively engaged for the season. But recently prices became steadier on a low level, and yarns now await the coming of the buyer. Some of the leading factors in yarns and knitted outerwear who have been close observers of the course of business in years of varying trading conditions profess to be enthusiastic over prospects of making 1930 a record year in point of distribution of sweaters and bathing suits.

Among the Knitting Mills

A NEW ADDITION to the Richmond Hosiery Mills, Rossville, Ga., will be started soon, which is to cost about $300,000. The building itself will cost about $35,000, and 25 full-fashioned hosiery machines at a cost of $265,000 have been ordered. This addition will increase the output from 2000 dozen to 5,000 dozen pairs of hose per week. Mark Wilson is contractor. These mills make Arrowhead hosiery.

Fisher-Beck Hosiery Mills, Inc., Kingsport, Tenn., with a capital of $100,000 have been chartered to manufacture cotton and wool seamless hose.

The Knitt Products Corp., Macon, Ga., are constructing a new mill. Lockwood Greene Engineers, Inc., Charlotte, N. C., are the architects.

Pyramid Hosiery Co., Rockaway, N. J., have placed an order with Robert Reiner, Inc., for 51 gauge "Einsiedel-Reiner" high speed full fashioned hosiery machines, some of which are now in course of erection.

The American Full Fashion Silk Hosiery Co., Paterson, N. J., has purchased from Alfred Hofmann Inc., West New York, N. J., ten Schubert & Salzer knitting machines.

Berkshire Knitting Mills, Reading, Pa., have started work on the erection of a five-story mill and dye house, which will join the present structures. The dye house will be built on the top floor. Footings have been placed and work is about to start on the foundations and erection of steel trusswork. The structure will be 270 x 89 ft., and will be of brick, steel and concrete construction.

Jacobs-Spivey, silk hosiery mill in Bridgeport, Ala., recently installed 16 new machines and placed order for considerably more new machinery, in which is included 60 more full-fashioned hosiery machines, a number of ribbers, loopers and knitting machines. Plans are being made for immediate expansion.

The Chamber of Commerce of Dothan, Alabama, is reported to be interested in establishing a plant in that city to manufacture knit underwear.

A large concrete and steel addition is being built to the Morganton Full-Fashioned Hosiery Co., Morganton, N. C. It is stated that $750,000 will be spent on a two year program and that 25 machines have already been placed, with 25 more to be placed next year. All machines are H. S. L. machines, ordered from Alfred Hofmann, Inc., and will be running by the middle of the year.

Charlotte Knitting Co., Charlotte, N. C., have installed 15 new full-fashioned hosiery machines, making a total of 24, to increase their output.

Stockholders are planning to reorganize the Durham (N. C.) Hosiery Mill, Inc., and to install 16 full-fashioned hosiery machines in 1930.

Contract has been let to Foster & Allen for second addition to the Wilkes Hosiery Mills Co., Wilkesboro, N. C., to increase capacity of plant.

The Sidney Hosiery Mills, Shelby, N. C., recently purchased full-fashioned leggers and footers from Robert Reiner, Inc., of Weehawken, N. J.

The Foster Knitting Co., Inc., Burlington, N. C., have placed an order with Robert Reiner, Inc., for "Einsiedel-Reiner" high speed full-fashioned hosiery machines.

Allen A. Co., of Kenosha and Sheboygan, Wis., are considering erecting plants in the Carolinas or Piedmont Section for the manufacture of hosiery.

Longview Hosiery Mills, Inc., are constructing a hosiery mill in Highland, N. C. The machinery, equipment and building will cost approximately $150,000. Construction will be completed in about four months, at which time 100 workers will be employed. Cline & Marlowe are contractors, while Martin S. Hampton is architect.

It was recently announced that the Knit Products Corp. will build a new full-fashioned hosiery plant in Belmont, N. C. The corporation is being formed by A. F. Dichtenmueller, A. C. Lineberger and R. L. Stowe, with an authorized capital stock of $350,000.

Perfection Hosiery Mills, Burlington, N. C., have given contract to Robert Reiner, Inc., to install "Seyfert & Donner" full-fashioned hosiery machines.

Standard Hosiery Mills, Burlington, N. C., are having "Seyfert & Donner" high speed full-fashioned hosiery machines installed by Robert Reiner, Inc.

The Washington Hosiery Mills, Nashville, Tenn., whose mills are now operating 24 hours a day, will add machines of the latest design and also add high grade half hose to the line of misses' fancy hose, in which they now specialize.

National Aniline Adds New Dye To Their Line.

The National Aniline & Chemical Company, Inc., have added a new dye to their line of developed blacks, National Diazine Black S Extra.

When diazotized and developed it produces a rich bloomy black, it is stated. Due to this quality, it is particularly suitable for mercerized cotton sewing thread, silk sewing thread, and silk piece goods, the company states. The company also states that diazotizing and developing also increases its fastness to light, perspiration, and hot pressing, and that it dyes animal and vegetable fibers substantially the same.

Westinghouse Apparatus Insulator Circular.

A new circular entitled "Westinghouse Apparatus Insulators"' has been recently issued by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. This circular describes outdoor apparatus insulators, which have a broad application for assembling switch gear apparatus, such as bus supports, disconnecting switches, etc. The design is sometimes called, the pillar, switch, or bus type insulator. This circular gives information and test data on their new complete line of outdoor apparatus insulators.

"Drying Achievements."

The Philadelphia Drying Machinery Co., Philadelphia, Pa., recently published a very instructive little bulletin entitled "Drying Achievements." The bulletin contains illustrations of the various drying machines which represent the most advanced practice and design, resulting from more than 30 years of practical experience and research work.

A New Publication.

The 1929 American Directory of the Knitting Trade, compiled by Textile World, Bragdon, Lord & Nagle Division of McGraw-Hill Publishing Co., New York, recently made its debut to the trade. The price of the new edition, which is more complete and interesting than ever, is $2.00, post paid.

TWO NEW MACHINES

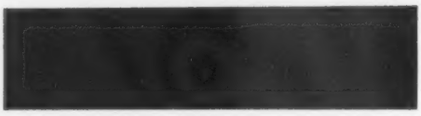
ANTICIPATING FUTURE STYLE TRENDS

BY

"STANDARD TRUMP"

To further augment a wide range of seamless hosiery machines for every kind of fabric and class of merchandise, Standard-Trump has perfected a machine radically different from any other knitter in existence. In our Wilmington showroom is the first "production" model of this new machine. It incorporates all that we have learned in more than three years of trials and experiments. The fabrics, the patterns, the color combinations produced on this new model have never been equalled—nor can they be duplicated—by any other seamless machine. And its versatility, its capabilities will always be adequate to meet the style trends of the immediate and distant future—producing new merchandise that will find ready acceptance at substantial profit. With these machines in your mill you won't fear competition—you will be competition!

In the field of better class merchandise there is always a stable demand for rib hosiery in both solid colors and fancy mixtures. To meet this demand we are now offering a Fully Automatic Seamless Rib Hosiery Machine making true one-and-one top with true French welt and any combination of single or broad rib leg. In either coarse or fine gauge this machine produces Half Hose, Golf Hose, and Ladies' and Children's Stockings comparable in every respect to the type of merchandise featured by importers of English hosiery. Demonstrations at our factory after January 1st, 1930. Deliveries about March 15th. Both these new developments will be exhibited at the 1930 Knitting Arts Exhibition.



STANDARD-TRUMP BROS. MACHINE CO.

WILMINGTON, DELAWARE, U. S. A.

TRUMP

ESTABLISHED 1872

The YARN MARKET

Philadelphia, Pa., December 14, 1929.

SOME MAY REMEMBER that the report of last month showed October to be a month during which record breaking sales were recorded in the market, with a gradual decline being witnessed during the first part of November. It will also be remembered that about the same time this decline in sales took place many of the carded yarn spinners in the South announced that they were planning drastic curtailment. At the time of the writing of the present report, however, very little curtailment has taken place to off-set smaller demand.

During the first week of the present report period, the week beginning November 18th, there was very little action in the market. The quiet week, however, failed to dampen the optimism of yarn merchants and spinners' agents, who were greatly encouraged by the rally in cotton quotations and the fact that although most buyers have temporarily lost interest in cotton yarns, they are at least taking in the deliveries due them and are not trying to defer payment.

In spite of the rally of cotton quotations during the preceding week, a very general price reduction developed during the next week in carded weaving and knitting yarns. This marked the first general price reduction in nearly three weeks. In carded yarns, this price reduction principally affected ordinary quality yarns, which are generally the first to reflect slack demand. Dealers asserted that the lower rates were not occasioned by the necessity of clearing the market of spinners' accumulations of yarns. The lower rates prompted many buyers to profess being willing to place substantial orders for carded yarn for 1930 delivery, provided they could do so at the prices suggested in their inquiries. These suggested prices were generally two or three cents below the minimum being quoted.

Demand for cotton yarns continued very small during the next week, as had been the case during the past two weeks. In fact, there was very little difference in sales recorded during this week and those recorded during the two preceding weeks. Many sellers believed that the bottom had been reached, and that seasonal influences were mainly responsible for the small amount of buying. It was the belief of many that buying would take on renewed life during the early part of January, as in many instances heretofore buyers have been rather slow in planning their January purchases. Prices during the week in carded weaving and knitting yarns eased off slightly, but then were only 1½ cents lower than on November 1st. Favorable comments on business conditions at the conference held in Washington were assumed indicative of an increase in confidence by buyers, which would tend to promote sales.

Most yarn houses reported that the number of hold-ups received during the first two weeks of December did not exceed those received during the first two weeks of the month for previous years. It was also learned that, in most cases, those customers requesting hold-ups were not doing so on account of being overstocked, but because they wanted to have little or no yarn to take into their year-end inventories.

Another bright feature of the present month was the exceptionally good credit situation that existed. A check up revealed that payments for the month of December were better than they had been for the same month in any previous years. Then too, there were no indications that payments would slow down during the month of January, although December is generally regarded a better month for payments than January. It was stated that credits would continue to be scrutinized, but that there would no longer be any fear of trouble directly attributable to losses from stock speculation. In other words, from a credit standpoint, the local market was in a sound position.

Philadelphia prices on December 14th follow:

Single Skeins.

4s to 8s	28	10s	29
12s	29½	14s	30
16s	30½	20s	32
24s	34 @34½	26s	35 @35½
30s	36½ @37		

Single Warps.

10s	29 @29½	12s	30
14s	30½	16s	31
20s	32½	26s	36
30s	37½		

Two-Ply Skeins.

8s	29	10s	29½
12s	30½	14s	31
16s	31½	20s	32½ @33
24s	35 @35½	26s	36 @36½
30s	37½ @38	40s	44 @45

Two-Ply Warps.

10s	30 @30½	12s	31
14s	31½	16s	32 @32½
20s	33½	24s	35½
26s	37	30s	38½
40s	45 @46		

Frame Spun Carded Yarn on Cones.

8s	28½	10s	29
12s	29½	14s	30
16s	30½	18s	31
20s	32	22s	32½
24s	34	26s	34½
30s	36½	40s	44
30s dbl. carded	39 @39½	30s tying in	35 @36

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	28½
8s tinged tubes	25½
8s 3-4 hard twist waste	25

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	43	20s	46
30s	51 @53	40s	54 @56
50s	58 @62	60s	66 @68
70s	76 @89	80s	87 @89

Mule Spun Carded Yarn on Cones.

10s	34	12s	34½
14s	35	16s	35½
18s	36	20s	36½
24s	38	26s	39
30s	40	40s	48

Single Combed Peeler Yarn on Cones.

18s	41	24s	45
30s	49	36s	51
38s	52	40s	53
50s	58	60s	65
70s	76	80s	87

Mule Spun Combed Peeler Yarn on Cones.

10s	44	12s	45
14s	46	16s	47
18s	48	20s	50
22s	51	26s	52
28s	53	30s	54
36s	57	38s	59
40s	60		

An Old-Timer Says—

(*Continued from page* 280.)

bound together; having failed, he untied the cord and broke each twig, one at a time. In this way he demonstrated to his seven sons the fact that if they would stand together; if they would cooperate, they would succeed, but once they were separated they would each be deprived of the fortune he was leaving them.

Don't you see, brother, that the carder is a twig; the spinner is a twig, and so on with the weaver, the cloth room man, the finisher, and the mechanic, and the cord which should bind them together is the superintendent, because he has the interest of all of them at heart.

This same reasoning applies to the overseer and his section men and operatives. The overseer who instills into his men—his workers—the spirit of team work, which is cooperation, and who practices what he preaches, in his daily relations with the other overseers and with his superintendent, will certainly progress much faster and have more pleasure out of his job than will the fellow who thinks he can go it alone.

I don't believe there are a great many overseers and superintendents who realize, when they take a job with a firm, that they are obtaining a membership in an organization where they can exercise their brains and their muscles and thereby put themselves in a position to handle a bigger or better job.

Most of them seem to be afraid that they will do too much work. They try to do just as little as they can to hold their job, with the result, that in three or four years they have lost interest in that job and begin to look for another position and start all over again.

It is common instinct in a human being to want leadership. The overseer should furnish that leadership—a pleasing personality (not intimate) and goodwill for your fellow man are two mighty big assets toward attaining that mysterious something that Fred called *"it."*

When a man's conscience tells him that he is giving the world, his employer and those who work for him, the best that he has in him, he is happy in his work, and his associates can never fail to praise such a personality. He has got *"it."*

Not genius, nor a gift of God, but persistence, honest application of what your conscience tells you you should do and what is right or wrong, is the strongest and best foundation for success, and any overseer or superintendent's success depends largely upon his ability to please the man he is working for—working *his way, not yours.*

Ask yourself this question, many, many times: "What does this man want done right now?" Do not be satisfied with giving your firm—your employer—all he wants, but the pleasant surprise of something unexpected; something beyond what the employer has any right to ask or expect. You, brother, will get as much "kick" out of that kind of service as he will.

This may be termed the "higher code" of overseers and superintendents, and OLD TIMER has been laying plans in his own mind for several years for the formation of a fraternity known as "The Higher Code," and only overseers and superintendents will be eligible for membership who have proven themselves worthy by showing the qualities as laid out in this article.

I haven't consulted my editors, because these plans have been more or less of a dream, an air-castle; and because I am still studying, seeking and trying to find some definite answer to that one big question—can *it* be cultivated? Yes, it certainly can. That, I am thoroughly convinced of, and that has prompted the thought that we as a body—as a fraternity of overseers and superintendents—should have some means of pooling our energies—our best brains—in an effort to raise our standard as a whole—to find out what that evasive *"it"* is and then devise means of acquiring more of it.

What Do the Mills Need Most?

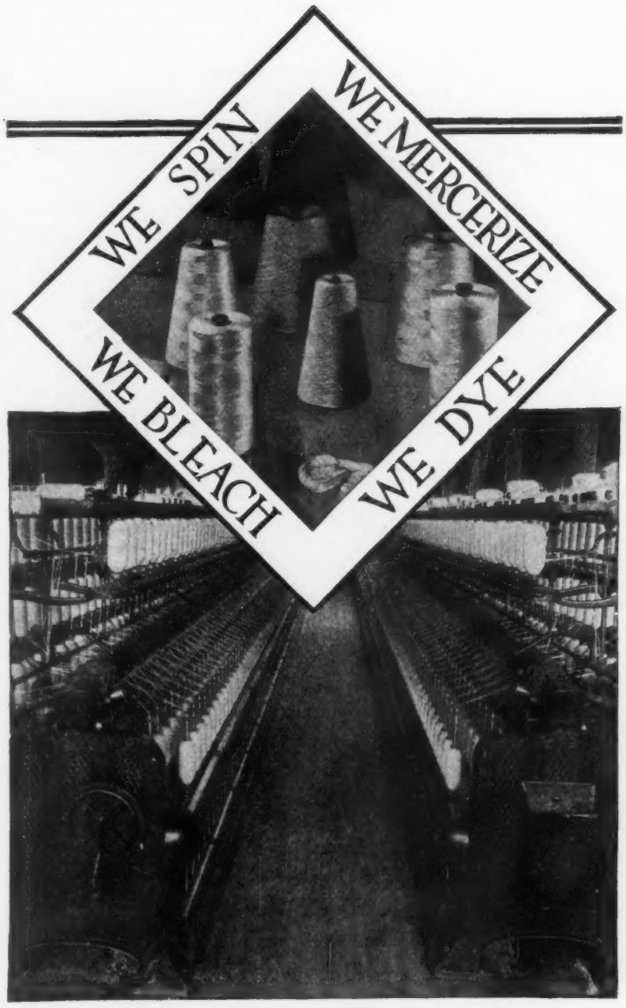
(*Continued from page* 248.)

rectly, if not directly, by showing up weak points throughout the mill."

Then Mr. Lockman turns to the future and says, "While we have improved wonderfully, there is a long ways to go yet. In the first place, we are not so efficient as we think we are. We must become more economical and more expert teachers of economy. As I see it, the crying need of the textile industry today is economy. I do not mean by this, lower wages or a big production to lower cost, but an actual saving of unnecessary waste around the mill, office and village, such as the loss of time, supplies, material, power, and everything that could be termed as unnecessary. In order to do this, we must be better judges of human nature, more alert and better leaders, better trainers, and last but not least, better men in every sense of the word. Combine those things with the improved and labor-saving machines that are being put out, along with the better human element that we are gradually getting into our mills, and I see no reason why we should not be fairly successful."

CARL M. MOORE, agent, West Boylston Manufacturing Company, Montgomery, Ala., wires that, "in our opinion, the biggest improvement in recent years from a machinery standpoint has been high speed spooling and warping, although single-process picking and long draft spinning should have some praise. However, as to the future success of the industry, we think that by regulation of over production so as to give a steady run throughout the year, rather than seasonal operation, is the salvation of the textile industry, and think this could be better accomplished by a nation-wide elimination of night operation."

C. C. COBB, superintendent, Geneva Cotton Mills, Geneva, Ala., says, "In my opinion the junking of old or obsolete machinery and replacing it with new and up-to-date equipment is one of the long steps along the road leading to higher efficiency in the textile industry. This applies especially to the opening, cleaning and picking departments—which of course means a better quality and likewise increased production, a better labor cost as the result of greater production, and a lowering of the average cost of the cotton, by reason of the improved system of cleaning and picking, enabling the mills thus equipped to use a lower



Standard
MERCERIZED YARN
Durene
REG. U.S. PAT. OFF.

SPINNING—we emphasize this word because yarn that is properly spun, with the uniformly correct twist, free from slubs, makes better fabric or hosiery.

Standard Yarn—natural, bleached, mercerized and dyed—every process carried on in our own plants to the most rigid specifications, assures you the quality you require for profitable reproduction.

STANDARD-COOSA-THATCHER CO., Chattanooga, Tenn.
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Standard
MERCERIZED YARN

RAYON FILLING
that will not produce one
"Shiner"
in a million yards of fabric

***and* PERFECT RAYON CREPE**
can only be obtained by consulting

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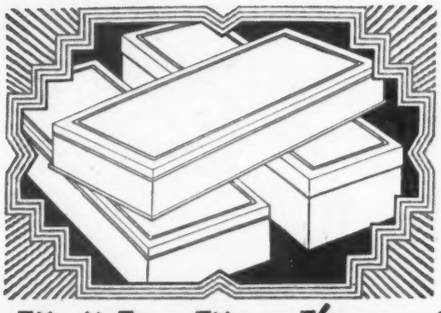

"Individualized" *paper boxes*
for all TEXTILE PRODUCTS

Old Dominion paper boxes are distinctly different from any boxes you have ever used. In them you get that certain "individuality" that makes them stand out above all others. Especially made to fit your products and printed in any color combination with your trade-mark or special design. Our five centrally located Southern plants can give you a quick service and low freight rates. Write our nearest plant for samples and quotations.

OLD DOMINION BOX COMPANY, INC.
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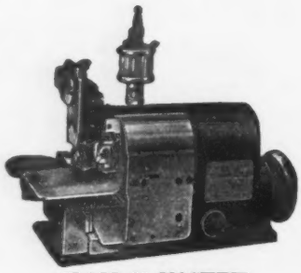
MERROW

REG. U. S. PAT. OFF.

HIGH SPEED TRIMMING AND OVERSEAMING, OVEREDGING AND SHELL STITCH MACHINES FOR USE ON KNITTED AND WOVEN FABRICS OF ALL KINDS

———200 VARIETIES FOR 200 PURPOSES———



CLASS 60 MACHINE

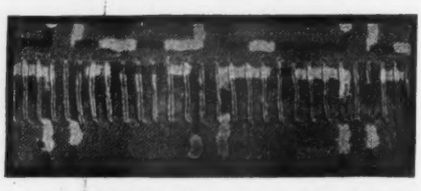
INQUIRE ABOUT NEW MERROW MACHINES

STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.



Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread **FLAT SEAMING** on Rayon Underwear.

Let Us Demonstrate the Work of These and Other Machines on Your Own Fabric.

THE MERROW MACHINE COMPANY

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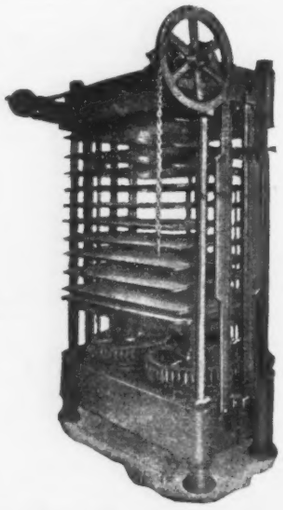

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Hot Plate Screw Press

FOR

Hosiery and Underwear

Write for Catalog and Prices

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FRANKFORD, PHILA.

FELT

For all Mechanical Purposes

Slashers and Roller Cloth for Cotton Mills.
Felt wicks and washers
FULL FASHION HOSIERY MILLS
Felt Sets for TEMCO Electric Heaters
Complete stock for immediate delivery

Samples and Prices Upon Request.

FIDELITY FELT COMPANY

Pike St. & Rising Sun Ave., Phila., Pa.

Angle Steel Equipment

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Ask for Catalog "C-C"

Knitters' Benches, Tables, Boxes, etc.—Angle and Sheet Steel Stools—Chairs—Desks—Bench Legs —Cabinets—Trucks.

Agents and Dealers in all Principal Cities

ANGLE STEEL STOOL CO.

Plainwell, Mich.

Send for Catalog

grade of cotton.

"In addition, the up-to-date mill superintendent or manager is awake to the importance of improved machinery, and the machinery manufacturers have as the result of their broad expansion of research, made great strides in designing and building machinery better adapted to higher efficiency, and they too are to be congratulated for the helpful part they are playing along with the modern men who are to man their machinery. In this connection, I am also mindful of that big army of men of brains and inventive mind who have contributed largely to higher efficiency with their hundred and one specialties or accessories which all up-to-date mills have purchased and are using so advantageously.

"Next in order are the wonderful mediums we have for the exchange of ideas among the men who are at the wheel, such as the Southern Textile Association with its discussion meetings, and the columns of the textile magazines. As a result of the exchange of ideas we have the new system, which with its many names, tends to eliminate lost motion, does away with the operative who was the jack of all trades and not so good at any, and created operatives who are specialists in their best suited lines—and this has helped them to better wages and at the same time has lowered our operating costs.

"As to the needs of the industry, they are many, and I shall mention only one, and that is a better understanding between employer and employee."

C. S. TATUM, manager and superintendent, Consolidated Textile Corporation, Raleigh, N. C., concurs in the opinion that the multiple or extension system of labor is one of the major improvements, particularly in print cloth and sheeting mills. Next, he suggests the marked improvement in opening and picking machinery. He continues, "while in a great many mills there are still many improvements in physical equipment badly needed, I think that the manufacturing methods have far outstripped the merchandising methods in a great majority of our mills. I think, though, that there has been real progress made in the matter of getting co-operation between the heads of the various mills and also between some of the commission houses. I think the work of the Textile Institute has been very helpful along this line and hope that it will be still more effective in its efforts during 1930. The one thing that is needed most of all is still a better spirit of co-operation between the mill executives so that there may be a better regulation of the supply of our products, and that there may be stronger determination not to manufacture unsold goods, and not to sell goods for less than mill cost. There should in some way be a decision reached to cut out all night work within a reasonable time."

The developments in opening and picking machinery are considered by W. A. BLACK, superintendent, Beaumont Manufacturing Company, Spartanburg, S. C., as the greatest contribution toward more efficient manufacturing within recent years. He says that, "There are no two bales of cotton alike, due to the fact that some is grown on upper lands and other is grown on bottom land; some is of the first picking, while other is of the second and third picking. Some

KARL LIEBERKNECHT
Full Fashioned
HOSIERY MACHINES
Are Known for
Speed When Needed—
Quality Production Always
(*The Machines Confirm It*)
Manufactured by
KARL LIEBERKNECHT, Oberlungwitz, Saxony
(In Any Desirable Gauge and
Number of Sections)
Imported and sold exclusively by
LOUIS HIRSCH TEXTILE MACHINES, Inc.
47 W. 34th St., New York, N. Y.
Lieberknecht Hosiery Machines have been made by KARL LIEBERKNECHT, Oberlungwitz, Saxony, continuously since 1873

It makes the
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FOR a long, long time, the "American" Underdriven Extractor has had a reputation for big profit handling of small batches. Rugged, accurate, perfectly balanced—its high speed and big capacity make it ideal for silk and rayon work. Baskets—20", 24", 26", 28", 30" —all with side sheets of monel metal. Investigate.
The American Laundry Machinery Co.
NORWOOD STATION
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The Canadian Laundry Machinery Co., Ltd.
47-93 Sterling Road, Toronto 3, Ont., Can.

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build a reputation for your goods . . .

It will—by giving you thorough wetting out, perfect penetration, level dyeing and the softness that makes a buyer feel the goods a second time for the sheer pleasure of it.

Ask the mill that shows increasing profits.

American Aniline & Extract Company, Inc.

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Chemicals of Originality

ACME SALES CO.

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DIXIE MERCERIZING CO. CHATTANOOGA, TENN. LUSTRE

A thorough knowledge of knitters' and weavers' requirements enables us to give you valuable service in the selection of yarns that will afford best production results. Let us serve you on your next order.

Install VITEK Automatic Adjustable STEEL STOOLS

Equip your offices, mills, factories and draughting rooms with these up-to-date stools and seating equipment. May be adjusted to any height in one second! Simply lift up on the seat and it locks in place!

Comfortable back rest and adjustable foot rest optional. 3 and 4 legged models. 20 styles to choose from. Swivel attachment at small extra cost.

Economical! Attractive!

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Free Your Mill of Pairing Table Menders

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EXPANDING INSPECTING MACHINE

For Seamless and Full Fashioned Hosiery

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MANUFACTURERS OF

Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

cotton has fibers that are fine and silky-like, while others are flat, coarse and strong, and in order to produce a good even yarn, all cotton should be well blended and aired. The new machines of more recent perfection fulfill all of these requirements and give us a more even and cleaner lap which of course produces a stronger and better yarn, and, therefore, the mills which have equipped with these modern machines can naturally produce better fabric than those with the old style opening and picking machines and in some cases at a reduced cost."

The Knitting Industry

TURNING NOW to the knitting industry, apparently this phase of the business has problems similar to those in the spinning and weaving division. Let us first quote B. D. GADDY, superintendent of the knitting department of the Golden Belt Manufacturing Company at Durham, N. C., which manufactures seamless and full-fashioned hosiery. He says, "The hosiery industry has made notable progress in the last two years. There is much evidence of new thought and practice. There is no longer disposition to follow certain established customs. In fact, new thought and new ideas are supplanting the old so rapidly that custom is changed to obsolescence.

"Efficiency is the keynote. Improved machinery, the selection of better raw material by technically trained men, the employment of more intelligent and skilled operatives, the quicker response to the demands of the consumer, and an intense desire to give better service to the trade, are among the things that have contributed to this progress.

"What the industry needs most is closer cooperation among its leaders in establishing prices consistent with good merchandise, rather than trying to meet the price of inferior distressed stock of some neophyte."

W. W. DANIELS, secretary-treasurer of the Cartersville Mill, Cartersville, Ga., manufacturers of ribbed underewar, agrees that "better merchandising is one of the greatest needs of the textile industry today. The manufacturer should know more about his cost, and if more of them had this information conditions would be vastly different in the textile industry today."

J. H. MCEWEN, vice-president and treasurer of the McEwen Knitting Company, Incorporated, Burlington, N. C., manufacturers of ladies' seamless and full-fashioned hosiery, feels that "the knitting industry as a whoel has been benefited tremendously during the past year by improved machinery and closer cooperation between machinery manufacturers and the mills on problems affecting them. Also a tendency toward closer cooperation between mills on manufacturing problems and more especially on merchandising problems.

"A continuation of these factors in the future will be a most important step toward the continuation of better manufacturing, better styling and regulation of supply with consumption, and a more successful industry as a whole."

In the knit underwear industry, according to J. A. CASON, treasurer, Georgia Knitting Mills, Barnesville,

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and chiffon hosiery.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SON CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.

TEMPERATURE *and the* PROCESSING *of* Rayon Yarns

In our modern plants our men have at their command every technical instrument that indicates the slightest variations of temperature and other conditions affecting yarn processing.

Without this careful supervision, and without the use of the most scientific equipment, rayon yarns may not retain their tensile strength, their smoothness and softness; the inherent characteristics of good yarns.

Supervision is just as important as operations. The modern plants of The Yarns Corporation of America are just as finely equipped and manned to handle machine dyeing as they are to process by hand.

Rayon Yarns on Cones, Cops, Tubes, Bobbins, Spools, Skeins, Warps and Beams, Direct, Tub Fast, Sun Fast, Indanthrene Dyes

Plants at

Brooklyn, N. Y.

Allentown, Pa.

Spartanburg, S. C.

The YARNS CORPORATION *of* AMERICA
290 Fourth Avenue, New York
Processors of Crown Brand Rayon Yarn

Ga., "great progress has been made in the development of more progressive merchandising and distribution, and this to my mind is the outstanding improvement in the trade; lower inventories, quick deliveries and capital turnover lead to practices and habits economically sound.

"The need of the industry is a decrease in the acceleration of tendencies toward over production, and an abandonment of the too prevalent practices of price-cutting and forced marketing of distressed merchandise, which has no price."

Operating the Banner Jacquard.

(*Continued from page* 334.)

gives trouble, but there is always a possibility of set screws loosening, or a jam straining it at some point. Broken needle butts and sinkers play havoc with the gears, and all these small pieces should be entirely removed from the machine. Directions have been given in a former section for adjusting the drum.

It is likewise possible for jack dial to move, causing jacks to slip off a sinker before giving it sufficient push, or where one jack controls two sinkers, the jack may push one sinker, get behind the other sinker and break both jacks and sinkers. The dial heel and toe cam must work freely, so that the elevator cam goes in and out with a snap. Have the cam lever bracket 15743 adjusted so the connection 15746 does not bind on top of the dial when in any position. If the bracket screws come loose, the angle of operation is changed, causing this trouble, which results in jacks breaking, and quite often the entire dial is stripped. The dial should be adjusted so the jacks give the final push to the sinkers before getting past the center. A machine in which sinkers get the only push at the engaging point will eventually cause trouble.

The sinkers must have push enough to clear the dividing cam, and the point of this cam should not be too blunt. Any sharp nicks, or cams too closely adjusted, will cause strain on the sinkers and wear on the cams. When many sinkers are broken in a mash, the best method is to strip the sinker head to remove all pieces of steel and other dirt that may be in the sinker slots. The sinker cap should fit snugly, but without unnecessary friction. The instep auxiliary cams have sharp points, which soon wear the cylinder when they get out of adjustment, and a good idea is to round off these points at the first opportunity. A nick or groove around the cylinder causes excessive friction on the needles and all parts operating them.

Sufficient tension should be kept on make-up jacks so that they do not drop with their own weight. A loose jack strikes the raising cam and bounds up, often pushing the needle under the picks and high enough to break.

Durene Issues New Broadside.

The distribution of a comprehensive six-page broadside detailing the features of Durene yarn and setting forth complete information of the consumer advertising campaign that gets under way immediately, has just been begun by the Durene Association of America, it was recently announced by the advertising counsel to the organization.

Construction Details of Circular and Full-Fashioned.

AN INTERESTING ANALYSIS has been made of hosiery construction problems submitted during the last four years to the Research Associate of the National Association of Hosiery & Underwear Manufacturers at the Bureau of Standards, Washington, it is announced by John Nash McCallaugh, managing director of the Association.

Frequent requests are submitted to the Research Associate by Association members for detailed analyses of the construction of samples of women's hosiery. These requests practically always involve the number of courses contained in the stockings.

The following table shows the average courses per inch in all the stockings, both full-fashioned and circular knit, submitted to the Association's laboratory over a period of the last four years. The yarn size, denier and courses per inch in each sample were used in obtaining this average.

It should be emphasized that the results shown in this table are merely the averages of actual samples of hosiery analyzed in the National Association's Laboratory. These averages are by no means suggested as desirable, or as standard. The table follows:

AVERAGE COURSES PER INCH IN THE LEG OF FULL-FASHIONED AND CIRCULAR HOSIERY.

Full-Fashioned.

Gauge	Yarns in Leg	Welt	Center Leg	Ankle
39	5-thrd. true silk— 55.8 den....	40	47	40
39	7-thrd. true silk— 81.6 den....	38	43	41
39	8-thrd. true silk— 85.1 den....	37	40	45
39	10-thrd. true silk—118.5 den....	36	40	45
42	5-thrd. true silk— 57.8 den....	45	44	44
42	6-thrd. true silk— 67.2 den....	45	45	43
42	7-thrd. true silk— 73.8 den....	40	44	45
42	10-thrd. true silk—110.2 den....	37	42	45
42	11-thrd. true silk—124.1 den....	36	40	42
48	4-thrd. true silk— 43.4 den....	52	51	45

Circular.

Gauge	Needles	Yarns in Leg	Welt	Center Leg	Ankle
48	220	153.0 den. rayon & 34/1/1 cotton yarn	28	31	31
54	240	146.0 den. rayon & 3-thrd. true silk	32	37	44
54	240	8-thrd. true silk— 91.1 denier	36	40	43
54	240	10-thrd. true silk—110.0 denier	37	37	46
54	240	12-thrd. true silk—125.5 denier	35	35	44
54	260	159.9 den. rayon and 1-thrd. true silk	33	40	40
54	260	149.4 den. rayon and 3-thrd. true silk	36	36	41
54	260	5-thrd. true silk— 55.2 denier	40	44	46
54	260	6-thrd. true silk— 58.4 denier	42	45	49
54	260	8-thrd. true silk— 88.9 denier	42	43	44
60	300	6-thrd. true silk— 65.6 denier	42	43	42

Merino and Rayon.

The Division of Design of the Associated Knit Underwear Manufacturers of America, 40 Worth Street, New York various fabrics accompany the Bulletin.

City, has recently issued Bulletin No. 8, which features merino and rayon. Illustrations picture the women's pullover shirt and short, the bodice top vest and knee length bloomer and the short bloomer. Folders explaining the various fabrics accompany the Bulletin.

Cutler-Hammer, Inc., Moves St. Louis Office.

The St. Louis district sales office of Cutler-Hammer, Inc., has moved from 611 Olive Street to 1914 Washington Avenue, St. Louis, Mo. It was also announced that the establishment of a warehouse at St. Louis where a stock of standard C-H motor control and wiring devices will be carried will insure customers of more prompt service.